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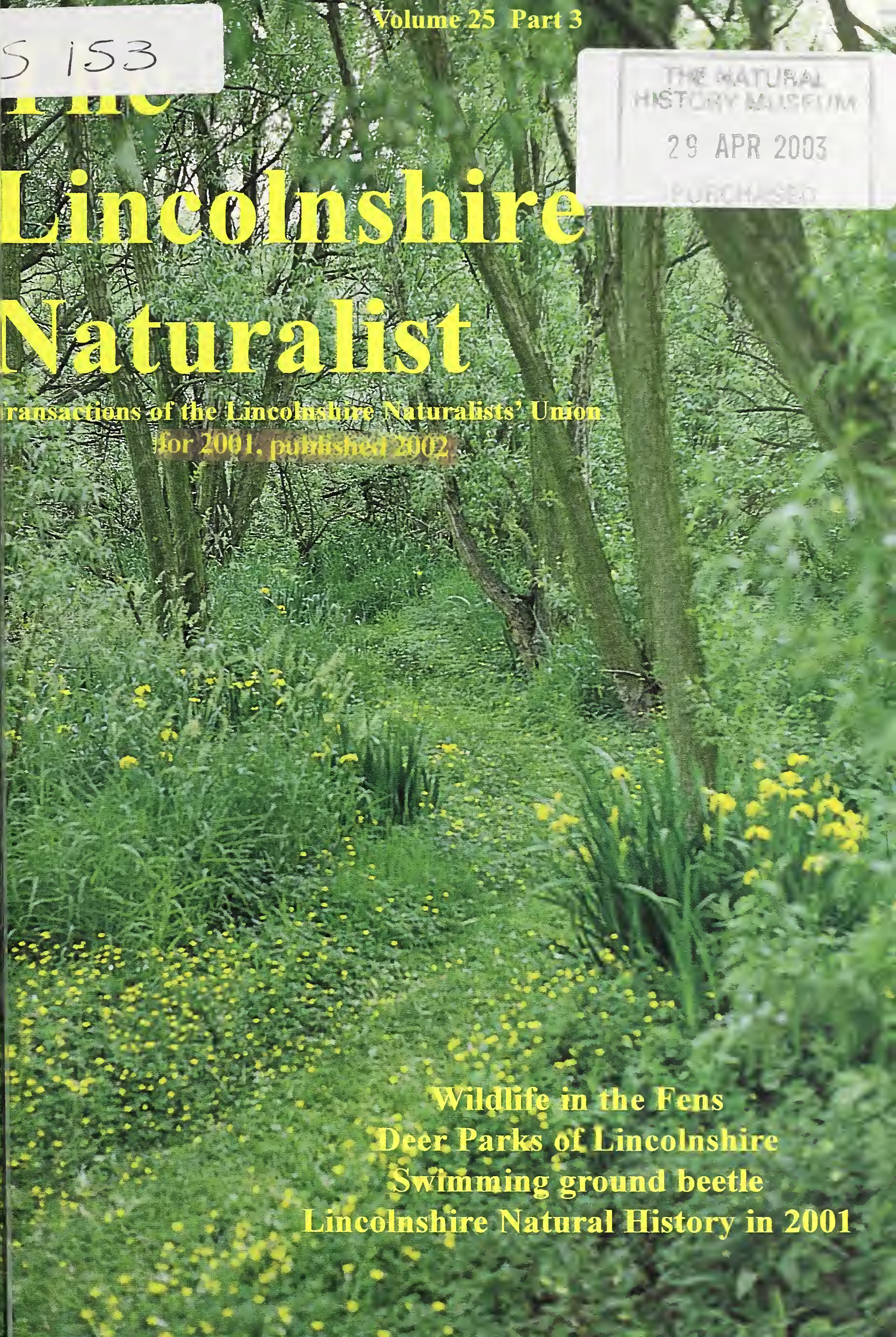

Wildlife in the Fens
Deer Parks of Lincolnshire
Swimming ground beetle
Lincolnshire Natural History in 2001

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THE FENS: FLAT, BORING AND A 'WILDLIFE-FREE ZONE'? LAYING THE MYTH TO REST

Annette Faulkner

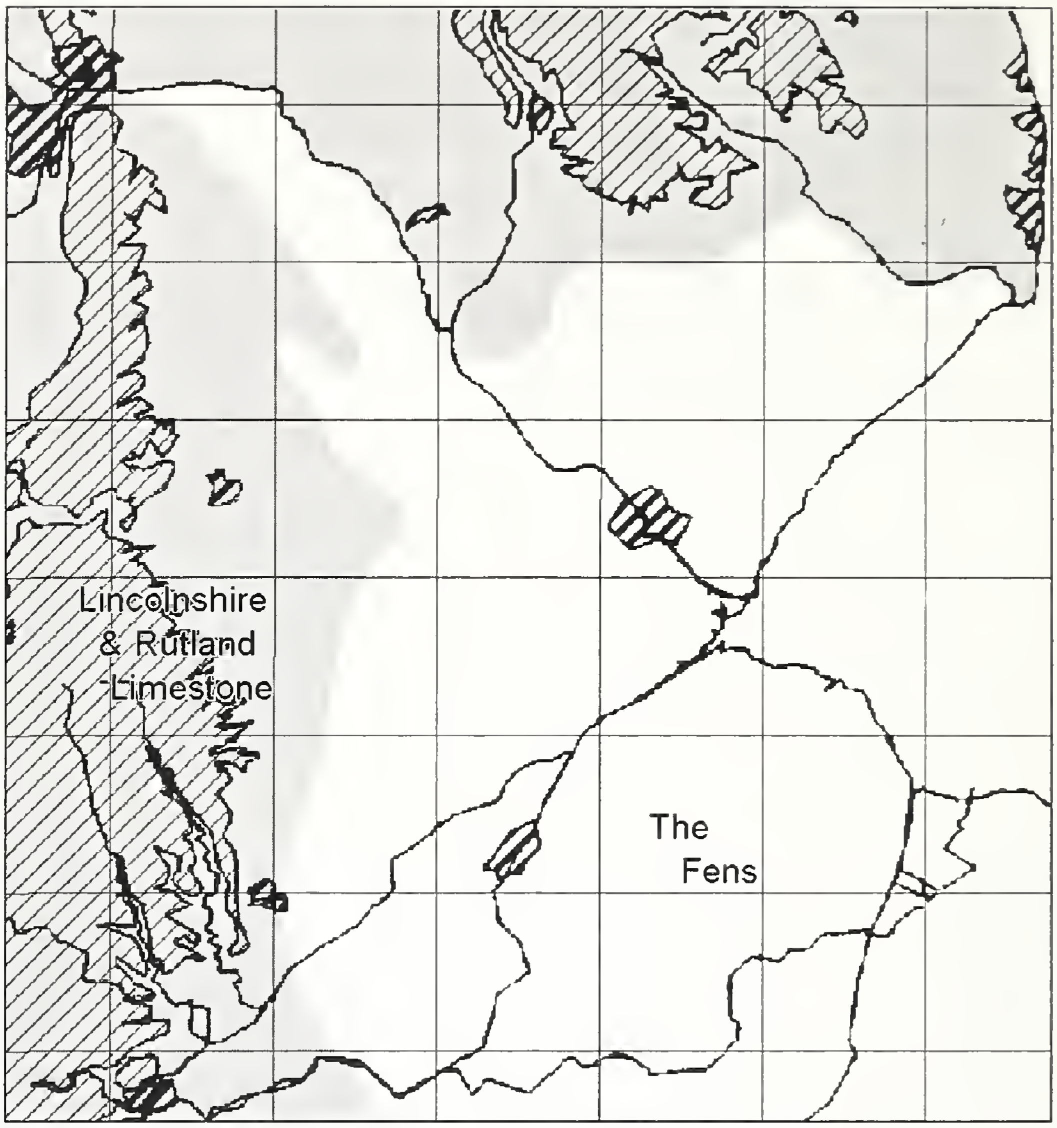
A few years ago two senior members of the Lincolnshire Wildlife Trust were accompanying two local members cross-country from Spalding to the Long Sutton area. One turned to the other and announced: 'We are now entering a wildlife-free zone!' The local members said they were inclined to agree with them - but they were all wrong. The Fens are most definitely not wildlife-free. What they suffer from is an image problem.

How this has come about, and the resultant dreadful neglect the area has suffered from present-day ecologists and most amateur naturalists ever since the LNU was founded, not to mention conservation organisations of all shades, both locally and nationally, is the subject of this address. In it, I hope to redress the balance a little, and persuade readers that the Fens are an area well worth their attention, even after the depredations of around fifty years of intensive farming.

Flat, boring and a ‘wildlife-free zone? Not all the fens resemble this stereotypic landscape - near Fishtoft. photo Roger Key

First of all, where are the Fens? If you look on the map you will see an area that starts as a wedge with its point almost into the south-east side of Lincoln, from where it travels south-east along the Witham to near Woodhall Spa, opening out just below Spilsby in the east and almost to Sleaford in the west, into a roughly semi-circular basin that parallels the present-day coastline of the Wash, right down through Bourne and past the county boundary into Cambridgeshire. The whole area covers around 1600 square kilometres and is about half of the total area of the Fens, the remainder being mostly in Cambridgeshire. It is also about one third of the total area of Lincolnshire. There are other smaller areas of fen in the north west around the Trent valley and the Isle of Axholme which, I would suggest, have been similarly neglected.

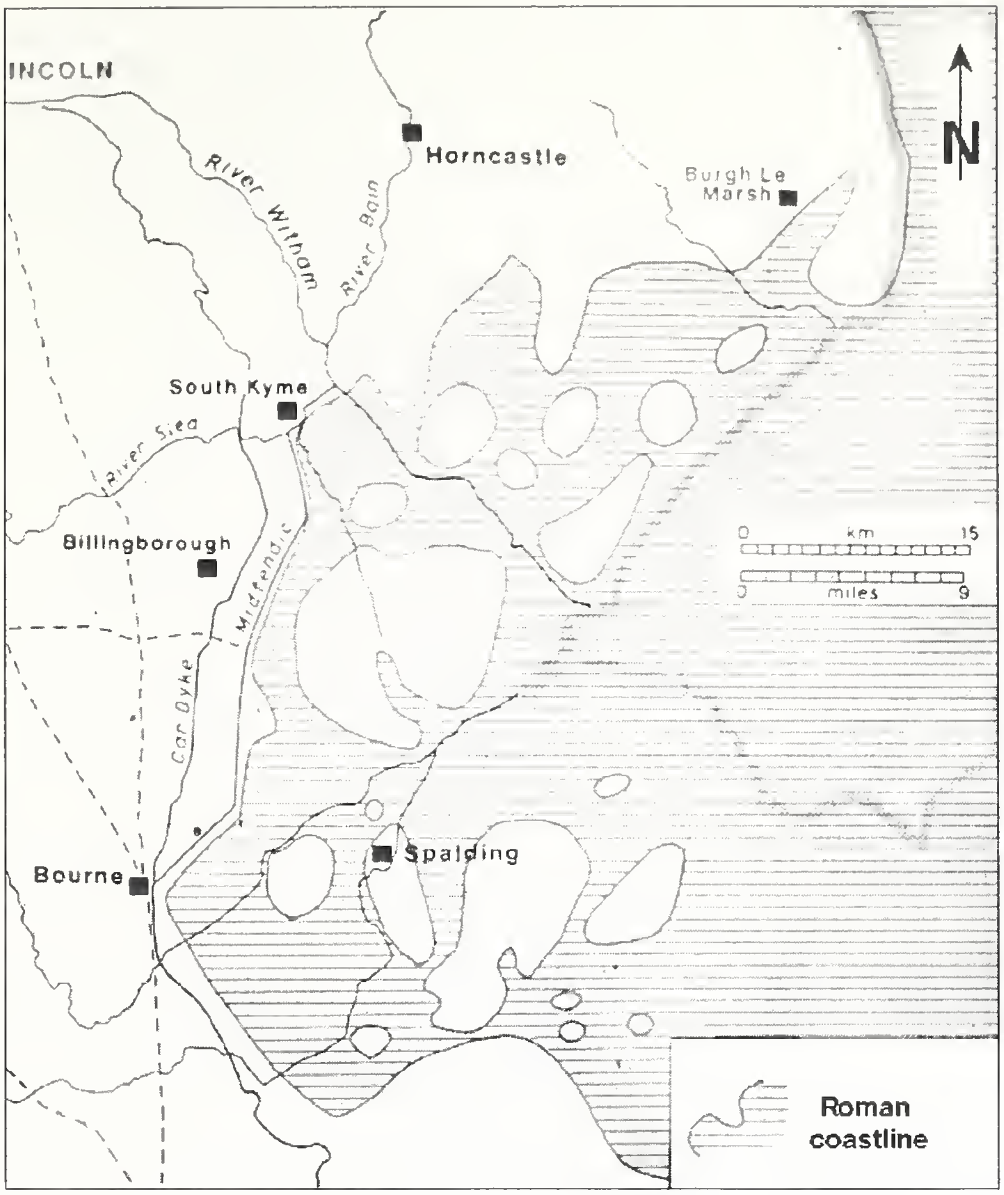
Secondly, what are the Fens? It is tempting to lump the whole area together as 'the flat, boring bit that goes on for miles and miles that is full of cabbages'! But in fact they are an extremely complex area which change visibly as you travel through them. To understand why this is so you need to understand something of the history of the drainage of the fens, and what is properly fen and what is actually marsh and not fen at all.



The Fens 'Natural Area' - after Weaver (1997).

If you look at early maps you will see that over the centuries the coast has moved further and further out into the Wash, as the inhabitants attempted to protect the land from the twin hazards of flooding from the sea and flooding from the rivers of the higher ground to the west, at their worst when rivers swollen by heavy rain were met by high tides, preventing the water discharging into the sea. Over the centuries natural accretion of the salt marsh created a ridge, and much of this ridge, now well inland, has been dry land since the eleventh or twelfth centuries. On the seaward side of the ridge sea 'walls' of earthen banks were built to contain the high spring tides and prevent periodic inundation, with the potential for loss of life and destruction of property that this caused. That these sea banks were fairly frequently breached can be seen from the accounts that appear in the literature on the area of disastrous floods, and more immediately in the high water mark on the tower of Boston Stump, which shows how far the water reached in the severe floods of 1810, when the whole of Boston was under water.

Successive areas of the salt marsh continued to be enclosed between the twelfth and the mid 20th centuries, being managed as grazing marshes until the second world war, when they were converted to arable. Enclosure of the salt marsh only ended in the 1970s, when a moratorium was declared following a public enquiry over an application to enclose a section of salt marsh at Gedney Drove End. This was because it was realised that the accretion that formed the salt marsh was slowing down, and new salt marsh was, basically, 'running out'. This area is known, even today, as 'the marsh', as in Moulton Marsh, and is classed as grade 1 arable land, having some of the finest soils in the country; but on the map it is still easy to see how the skills of the drainers and embankers improved over time; the medieval banks, many with roads on the top, wind and twist as they followed the line of a creek or old river bank, whereas later ones (plate 1) are straight, or have a regular curve to them, and it is still relatively easy to pick out the old coastlines.



Roman coastline of the Fens (after Bennett & Bennett: 1993)

As the ridge developed, so the freshwater that had poured off the high land had fewer and fewer routes to the sea, and began to form huge seasonal lakes, with the routes of the four rivers that discharged into it - the Witham, Glen and Welland, and Nene - frequently changing course. Even by Roman times islands had formed where there were areas of higher ground, such as at Crowland and Spalding, and the north-south ridge upon which are built the villages of Stickford, Stickney and Sibsey, and these mostly stayed dry, except in the most extreme conditions. The wedge shaped section of fen to the north, which is really the flood plain of the River Witham, was also subject to seasonal flooding.

These are the fens proper, and their history is quite different from that of the marsh, but even here there are two types of fen: the silt fen and the peat fen.

The silt fens, which are the ones immediately behind the ridge, encompassing a large area south from Spalding to the county boundary and a narrower strip due north to the west of Boston, were formed from silts deposited by the rivers, and a large part of these fens were embanked and drained by the fourteenth century, with the banks being given names such as Old Fendyke and New Fendyke (at Sutton St James), still in use today. (Note the use of the word 'dike' in its original meaning of a bank; the confusion with a dike being a ditch arose much later.)

The peat fen, on the other hand, was further inland and ran between the silt fens and the edge of the foothills from Market Deeping to north of Heckington. The Witham fens are also peat fens. The peat was formed from the saturated vegetation of the seasonal lakes, deposited over centuries.

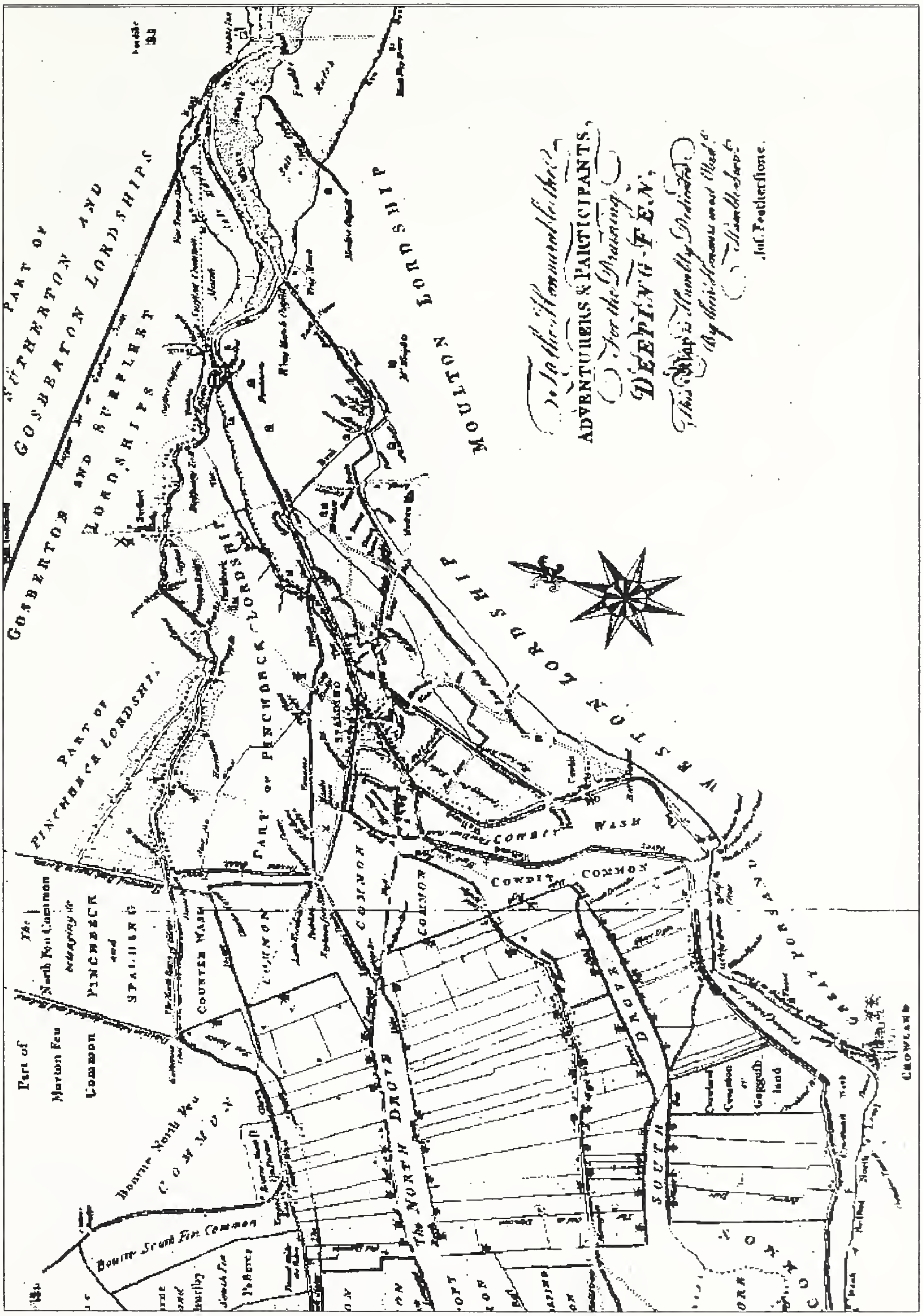
Whereas the aim of the marsh embankments was to keep the sea out, and create more grazing for their stock, the fens appear to have been a self-contained area where the multitude of fish and fowl found in the shallow pools and lakes provided a living for an independently minded community of fen 'slodgers' and their families. In the winter they caught thousands of wildfowl which were sold in the London markets, either by using duck decoys, where ducks were lured down net covered 'pipes', or by shooting, using flat

Cut reed (top) and fen sedge as it would have been in the Lincs fens and is still carried out in Norfolk. photos RS Key

bottomed punts in which the wildfowlers propelled themselves across the shallowly flooded land (this method was still in use up to the 2nd World War). They also caught tons of fish, predominantly eels. In the summer, when the waters subsided, the abundant grass was used by commoners for grazing or for hay - though in bad years, when the water was still high, animals had to swim to the higher land, or even be taken out by boat! In the deeper fens, where peat had formed over the centuries from the rotting vegetation, peat was dug for fuel, and reed *Phragmites australis* and great fen sedge *Cladium mariscus* were harvested for thatching.

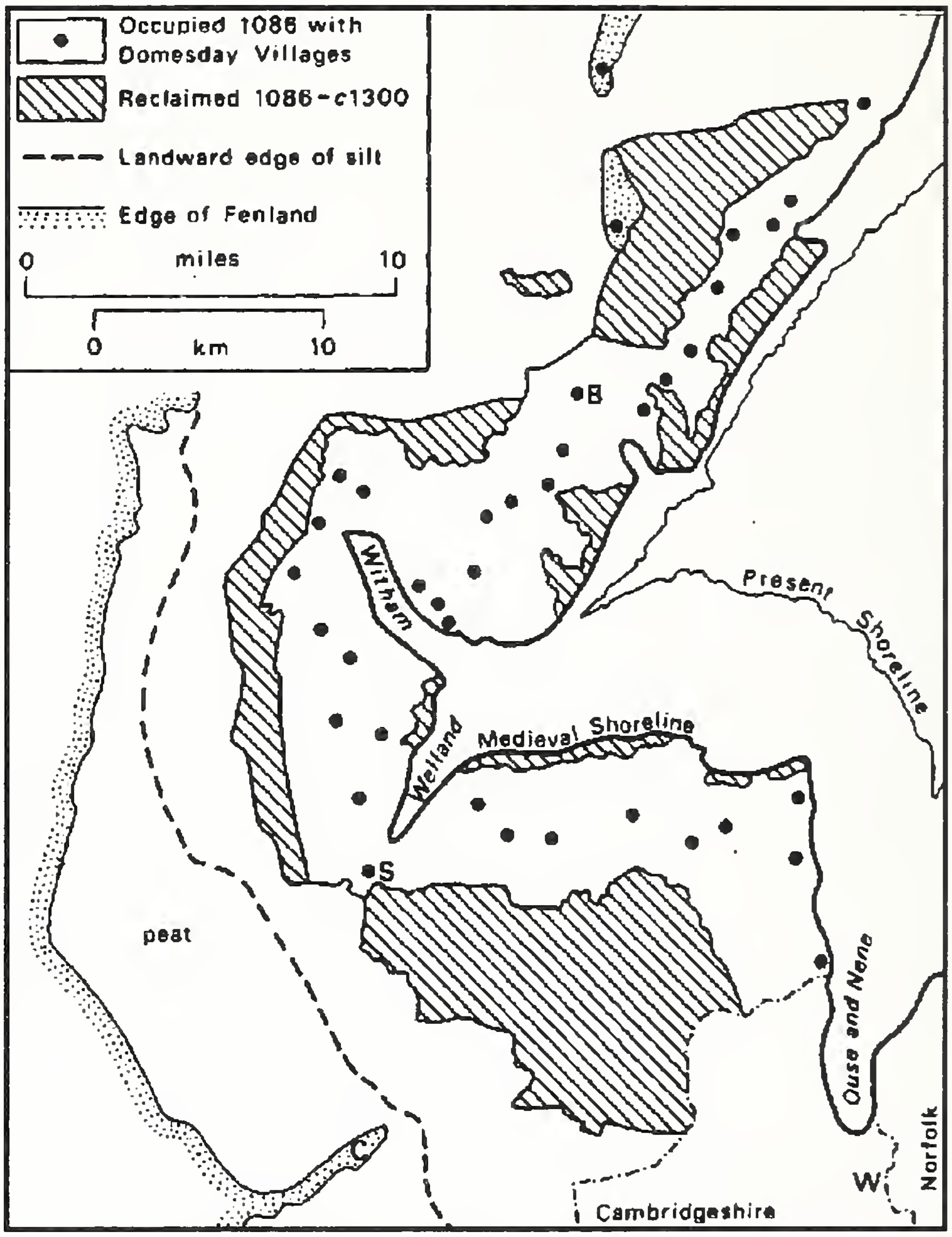
As can be seen, the silt fens were drained very early, apparently by co-operation between the local communities, but the inhabitants of the peat fens were not so amenable and there was considerable resistance to the idea of draining these fens. Early attempts would be partially successful for a while, then banks would be neglected or sabotaged, rivers and drains would be allowed to silt up, or severe winter weather would cause flooding that would breach the river banks, and they would have to start all over again. Various Acts were passed ordering drainage works to be carried out, but it wasn't until the 17th century that serious efforts were made to drain the peat fens, when a government scheme invited 'Adventurers' to put up money to carry out the work - with only mixed success; when the money ran out the banks were neglected and broken and it was the next century before further attempts were made, and Dutch drainage engineers were called in.

Even then all was not plain sailing. Whilst the fens round the northern end of the Witham had been successfully drained by the end of the 18th century, the drainage of Deeping Fen and the East, West and Wildmore Fens provided not just problems of local resistance,


To the Honourable the
ADVENTURERS & PARTICIPANTS,
for the Draining
DEEPING FEN;
This Map is Humbly Dedicated
By their Humble and Obed.t
Serv.t
Jos. Featherstone.
PART OF SUTHERTON AND GOSBERTON LORDSHIPS
GOSBERTON AND SURFLEET LORDSHIPS
PART OF PINCHBECK LORDSHIP
PART OF PINCHBECK LORDSHIP
MOULTON LORDSHIP
WESTON LORDSHIP
COWBIT WASH
COWBIT COMMON
COUNTER WASH
The North Fen Common belonging to PINCHBECK and SPALDING
Part of Morton Fen Common
Bourne North Fen COMMON
Bourne South Fen Common
The NORTH DROVE
SOUTH DROVE
Crowland or Goggesh land
CROWLAND

Map of Deeping Fen, 1763 by Jos. Featherstone (after Davis, 1994) but also logistical problems, in the case of the East Fen because of varying land levels and the deep pits of old peat workings (the Lincolnshire equivalent of the Norfolk Broads), and in the case of Deeping Fen the fact that it was the most low lying of all the fens. But drainage engineers had learnt a lot by then, and the East, West and Wildmore Fens were drained by 1814. Deeping Fen was not successfully drained until 1823, when the advent of steam-driven pumps finally succeeded in draining this last huge fen.

Parts of the topographical Fens are some of the *oldest* managed landscape in the county, and this can be appreciated most easily by looking at the distribution of the churches. The ones along the ridge, now delineated by the A17, all of which except Sutton Bridge date from the 12th and 13th centuries, are large, substantial buildings, built on the backs of the profits made from sheep farming, with cultivation and management going back centuries, and the presence still of many old hedges in this area belies the claim that there are no trees in the fens. It was also a very rich area. But if you look again at the pattern of the churches there are others that were built in the early and late19th century, which reflects the pattern of drainage and the expansion of the population into areas that were hitherto uninhabitable, with mid - late 19th century churches at, eg Holbeach St Marks, reflecting the drainage and embankment of the marshes, early 19th century churches in the East and West fen areas, eg Carrington, and the late 19th century church at Deeping St Nicholas (the only church in Deeping fen), reflecting the drainage of the fens.



Reclamation in South Lincs 1086-1300, with fen edge churches. B - Boston. C - Crowland. S - Spalding. W - Wisbech (after Davis, 1994).

Agriculture

As already noted, sheep and cattle had been reared in the fens for centuries, being grazed both on pasture on the high ground and being driven out on to the commons in the unenclosed fen in the summer. Other crops were grown too, both to feed the stock and to feed the local population, and for much of the time the area was largely self sufficient.

After the last of the fens were drained and enclosed around the beginning of the nineteenth century the land was sold off. In his huge work on the South Lincolnshire Fens (1896), Wheeler describes how the biggest holdings were only 300-400 acres, with in some parts of the Fens up to 50% of the land being held by smallholders in units of between 5 and 20 acres.

However we may view the drainage of the fens from this distance in time, for the fenlanders of the time, many of whom had lived in very poor conditions, often afflicted by poor health, once it was done it seems to have afforded a great improvement in general living conditions (though who today would be happy with a one up-one down cottage, plus scullery and 'small dairy'?), and produced a new-found stability. The smallholders cultivated every last square inch of their land, growing a wide range of crops and vegetables, and this is a pattern that persisted well into the twentieth century, in some cases right up to the 1950s for some of the older generation - it is only in recent years that we have stopped seeing past occupations of retired farm workers described as horseman or stockman in our local newspapers. Some of these smallholdings exist even today, but they are few and far between now.

Wildlife

Much has been written about the wildlife of the East Fen, because of the connection with Sir Joseph Banks, and the work he did there, though paradoxically it was Banks who was instrumental in its drainage. But what of the rest of the area? Joan Gibbons, in the Lincolnshire Flora, alluded to early descriptions by William of Malmesbury (c1140) of the undrained and unenclosed fens, as being 'a very paradise.... bearing goodly trees...' and Wheeler quotes Camden's description of the land round the island of Crowland Abbey at the beginning of the 16th century as 'lying amongst the deepest fens and waters stagnating off muddy lands....and nothing to be seen on every side but beds of rushes, and near the church a grove of alders'.

In addition, Wheeler quotes at length from various writers describing the vast quantities of waterfowl prior to drainage, including cranes *Grus grus* being 'very common' and a 'vast heronry at Cressy Hall' near Gosberton where 'Mr Pennant counted 80 nests in one tree'. He also talks about the many decoys, already mentioned, and the huge numbers of duck caught therein - mainly mallard *Anas platyrhynchos*, teal *Anas crecca* and pochard *Aythya ferina*, and finally, in his chapter on birds, remarks that partridges *Perdix perdix* 'are still abundant' but owing to the absence of cover 'there are no pheasants *Phasianus colchicus* and, for the same reason, no foxes *Vulpes vulpes*'....

But what did the fens really look like? By putting together what is already known, using a modern map and a certain amount of local knowledge, it is possible to start to build up a partial picture, pre and post drainage, of parts of some of the fens. For example, the fens to the east of the fen-edge villages of Horbling, Dunsby, Dowsby, et al south to Bourne, are marked as a wilderness on a medieval map; on the east side of the fen is higher land - the 'high fen' - at West Pinchbeck north to Quadring and Donington. At West Pinchbeck, amongst other drove roads, Starlode Drove leads west almost dead straight for two and a half miles to the eighteenth century South Forty Foot Drain, which in turn bisects the fen from south to north, before turning east to its outfall at Boston. Star Lode Drove doesn't cross the South Forty Foot Drain, and nor do most of the other drove roads leading east from the fen edge villages on the opposite side, mostly about 4-5 miles away, making this even today a remote area little explored, and populated only by isolated farms.

But why 'Starlode'? According to the Flora of Lincolnshire 'star thack' was a local name for great fen, or saw, sedge *Cladium mariscus*. A 'lode' is an old name for a watercourse and a 'drove' a track for taking sheep, cattle or, in the fens, geese, out to the common grazing. This suggests that there were parts of the fen where *Cladium* grew, which we know was used extensively in thatching, mainly for the ridge. In the Spalding Gentleman's Society John Redshaw (pers comm) found the first ever record for large copper butterfly *Lycaena dispar* a mile or two south of this same area, recorded in 1749. The larval food plant of the large copper butterfly is great water dock *Rumex hydrolapathus*, which is still found in the fens, though *Cladium* is extinct.

The earliest British record of the Large Copper was from the Lincolnshire Fens in 1749. photo C Faulkner

Near Deeping St James there is an area called Cranmore. This is on the edge of Deeping fen, and would have been on the peat. An area of wet heath where cranberries *Vaccinium oxycoccus* grew? And what about the bitterns *Botaurus stellaris* that were recorded? Bitterns need large areas of reed bed. Slowly a picture starts to emerge.

But little appears to have been actually written about the natural history of the general area apart from birds and eels *Anguilla anguilla*. The Rev J Dodsworth recorded the plants of the area around the Bourne fens in the first half of the19th century, but once the area had been completely drained the 'flat and boring' description started to take over very quickly and Wheeler (1896), in his introduction, bemoans the fact that everyone sees the fens as 'flat, boring and full of cabbages' (to paraphrase). So nothing changes.

Not many years earlier the Victorian interest in natural history had really taken off, with the Lincolnshire Naturalists' Union being founded in 1893, having grown out of earlier involvement by north Lincolnshire naturalists with the recently formed Yorkshire Naturalists' Union.

In the early years of the 20th century there were a number of L.N.U. visits to the fens, starting with Crowland in 1901 (see opposite), but detailed records from these early excursions seem to have been lost. After the second world war there were few visits to the area, most of those which took place were to nature reserves, and large areas of the fens have never been visited. Why is this? I suspect naturalists have been so dazzled by descriptions of the sheer abundance of everything prior to the final push for total drainage that they genuinely believed everything to be lost. Fortunately this is not so, but the result has been that the area was neglected by naturalists at a time when there were still many more relict populations than there are now.

Changes in the Fens - The first L.N.U. meeting in upper photo - old postccard lower A Faulkner) the Fens was to Crowland in 1901. This is how the same area looked a century later.

The pattern of agriculture set at the beginning of the 19th century - mixed farming on the silt lands, with a good deal of permanent pasture, and arable on the old peat fens - persisted largely unchanged until World War Two, when 'dig for victory' demanded that the grasslands be ploughed up and converted to arable.

As has already been seen, most naturalists had by this time given up on the fens, but although tamed, the water was still there. If you look at any map of the area, the larger the scale the better, you will see it is criss-crossed with dykes (as the ditches are known), and drains, the principal being that small dykes feed into bigger, deeper dykes, which feed into small drains and so on. Eventually the water reaches one of the main drains, such as the Vernatt's or the South Holland Main Drain, which in turn feed into the rivers and thence to the sea. The smallest dykes only hold water for a short time during the wettest part of the year - and sometimes not at all - but many dykes and all the drains hold water all the year round. The water level in these drains is controlled via pumps and/or sluices, which either hold back or release water as needed to keep the drainage in good order - and to keep the sea out.

Fenland dykes can be very rich wetlands - the Cross Drain near Market Deeping photo AP Fowles

Each of these dykes and drains is a mini wetland and the key to their management lies in the ecology of the common reed and its allies. In the summer all these plants grow furiously, dying down in the winter to create 'litter'. The potential for clogging up the dykes and drains is obvious, and a large part of the work of the various drainage boards is keeping the dykes and drains clear by cutting, but also by digging them out in the winter to maintain the correct depth to assist drainage. But what happens if dykes become redundant or are neglected? Reed, the two pond sedges *Carex spp* and the two reed maces *Typha latifolia and T angustifolia* are all like giant twitch *Elytrigia,* with rhizomes that can grow many feet in a summer - at a neglected pond site near my home, within three years the reed had grown 30 feet into the adjacent field! Most of these wetland plants need a degree of water to encourage their spread, but reed is not so fussy and I have even seen it on the top of an old, very dry railway embankment. If most dry land is trying to return to woodland, so old wetlands are trying to return to reed bed - before drying out and turning to scrub.

Now reedbeds in themselves can be pretty boring places unless you are an ornithologist, as the dense reed is the original monoculture, allowing very little else to grow - which is why much present day reedbed management is geared towards creating areas of open water and as much 'edge' as possible. This is where the real diversity lies, with a far greater range of plants and their associated invertebrates, and the animals and birds that feed on them. Similarly, water levels are also managed to give the greatest range of levels, though in the old undrained fens this would have happened naturally with the seasonal rise and fall of flood waters. Could it be therefore that drainage can actually increase diversity, by creating miles and miles of edge conditions and that, during the 19th and early part of the 20th centuries, those invertebrates that flourished in these conditions would have experienced a population explosion? But the image of the fens as being flat, boring and having no wildlife means that hardly anyone bothered to look, so we shall never know.

The last fifty years

There are still many people born in the 1940s and before who remember what the fens and marshes looked like when they were young. One lady in her 70s said there were cowslips *Primula veris* everywhere in the pastures when she was a girl; another, a retired drainage board worker, who grew up in Fleet Fen - one of the silt fens - described how many of the pasture fields were ridge and furrow, with cowslips on the ridges and cuckoo flower *Cardamine pratensis* in the damp furrows. Interestingly, he said that this also helped with the drainage, as free draining loam had developed on the top and the water drained into the clay hollows. When the pastures were ploughed up during the last war, these ridges were levelled, immediately leading to drainage problems - but thereafter everyone followed suit and most of the ridge and furrow has now been lost.

Cowslip on the ridges and cuckoo flower in the furrows. photos RS Key

LNU member Kay Heath, who grew up on a farm at Gosberton Risegate in the 1930s and 40s, also recalls the small fields, the many horses and big hedges of her childhood, with wildflowers everywhere in the road verges, and the Risegate Eau, a very ancient drain which runs through the centre of the village, 'like a river' and full of flowering rush *Butomus undulatus* and other wetland plants each summer. A small amount of flowering rush was still present in the 1980s, but with the subsequent installation of a new sluice, the further lowering of the water table and deterioration of water quality it has all but died out.

With the ploughing up of most of the pasture and the conversion to arable came, as we all know, the intensification of farming methods generally, and the use and abuse of agrochemicals of all persuasions. Farmers are conservative people, and the fenland farmer in particular is extremely resistant to anything that might be interpreted as outside interference, but some of the then younger generation, now in their 50s and 60s, embraced the new ways with enthusiasm, most of the rest followed, and the ecological damage done in the 1960s, 70s and 80s was considerable - to the extent that even the grass verges were sprayed against 'weeds': when we moved to the fens in the early 70s you were lucky to see a dandelion *Taraxacum sp.* Outsiders saw the carnage and pronounced the fens dead.

But the fens were not dead. Little pockets of good habitat remained to act as reservoirs for the future, and some of the dyke-side vegetation survived the slaughter. Above all there was the seed bank, lying a few inches below the surface and waiting to be disturbed before bursting into fresh growth. And then there were the washlands.

Washlands are essentially storage reservoirs for flood water. There are two main ones in the south fens - the Counter Drain Washes, and Cowbit and Crowland Wash. Although their structure is slightly different both of them consist of the embanked river on one side and a flood bank some distance away on the other, with a drain close to the flood bank to collect the water as the level falls and return it to the river some distance downstream. They operated as a way of relieving pressure on the river banks at times of high flow on the rivers Glen and Welland respectively, and prevented the rivers overflowing into the surrounding fen. Because there was no pattern to flooding of the washes, since in periods of high summer rainfall they could be flooded in the summer as easily as in the winter, they were managed exactly as the undrained fens had been, with a mixture of seasonal grazing and hay meadows ('mowing fields') in the summer and, up until the Second World War, wildfowling on the flooded fields in the winter, with skating when the water froze.

Crowland Wash when it was still used. from an old postcard

During the 1940s and 50s a few naturalists started to wake up to the devastation that was going on all around them, and there were the first stirrings of the present day conservation movement, in Lincolnshire with the foundation of the Lincolnshire Wildlife Trust (or Naturalists' Trust as it was known then) in 1948, but until the late 1980s nature conservation organizations all too frequently took a hands-off approach to the management of sites that were rescued, and an awful lot of hand-wringing about what had been lost. The result was that many sites continued to deteriorate, and the fens appear to have been largely written off altogether - had it not been for the endeavours of one man. The late Arnold Smith was an accountant, originally from Derbyshire, but based in Spalding, who fell out with the Trust over its hands-off approach to nature reserve management and eventually set up his own organisation, South Lincolnshire Nature Reserves, in order to carry on rescuing and managing small sites in the south fens in his own fashion (which, it could be argued, sometimes went too far the other way!). But before he did so he was instrumental in the Trust's purchase, in 1967, of about a quarter of the Counter Drain Washes - which is now the Baston Fen Nature Reserve (cover & plate 2).

Cowbit and Crowland Washes were not so lucky. At around 2,500 acres (1012 hectares) they are many, many times bigger than the Counter Drain Washes, extending in a strip that varies in width from around a kilometre to less than 100 metres, all the way from Spalding right down to Peakirk, a distance of around thirteen miles (21km). However, their conversion to arable has been very recent, and even now, on the narrowest strip, there is still pasture (albeit 'improved') grazed by sheep. This allowed another Lincolnshire naturalist, and past president of the Lincolnshire Naturalists' Union, John Redshaw, to spend a lot of his time during his later teens pottering around investigating the wildlife still abundant in the 1950s. All his notes were carefully recorded in a notebook, now deposited with Spalding Gentlemen's Society, and I have been fortunate enough to be able to borrow it. A summary of his lists and notes from this time are in the table below. In 1954 Miss Gibbons visited and added a few more plants to his list.

Table. Some records from Crowland and Cowbit Washes (the Welland Washes), from A Natural History of the Welland Washes of South Lincolnshire, E J Redshaw 1959

Plants	
Arrowhead	*Sagittaria sagittifolia*
Black poplar	*Populus nigra*
Bulrush	*Scirpus lacustris*
Bur marigold	*Bidens sp*
Bur-reed	*Sparganium sp*
Comfrey	*Symphytum officinale*
Flowering rush	*Butomus umbellatus*
Frogbit **(plate 3)**	*Hydrocharis morsus-ranae*
Greater water parsnip	*Sium latifolium*
Hop trefoil	*Trifolium campestre*
Hornwort	*Ceratophyllum demersum*
Lady's smock	*Cardamine pratensis*
Mare's-tail	*Hippuris vulgaris*
Marsh marigold	*Caltha palustris*
Marsh speedwell	*Veronica scutellata*
Marsh stitchwort	*Stellaria palustris*
Meadow rue	*Thalictrum flavum*
Meadowsweet	*Filipendula ulmaria*
Musk thistle	*Carduus nutans*
Perforate St John's wort	*Hypericum perforatum*
Pondweed curled	*Potamogeton crispus*
Pondweed fennel	*Potamogeton pectinatus*
Pondweed opposite-leaved	*Groenlandia densa*
Pondweed shining	*Potamogeton lucens*
Purple loosestrife	*Lythrum salicaria*
Ragged robin	*Lychnis flos-cuculi*
Reedmace	*Typha sp*
Spiked water-milfoil	*Myriophyllum spicatum*
Water crowfoot	*Ranunculus peltatus*
Water-dropwort tubular	*Oenanthe fistulosa*
Water-dropwort fine-leaved	*Oenanthe aquatica*
Water forget-me-not	*Myosotis scorpioides*
Water plantain	*Alisma plantago-aquaticum*
Water speedwell	*Veronica sp*
Water violet	*Hottonia palustris*
Yellow flag iris	*Iris pseudacorus*
Yellow-cress creeping	*Rorippa sylvestris*
Yellow-cress great	*Rorippa amphibia*
Yellow-cress marsh	*Rorippa palustris*

Birds	
Barn owl	Scarce resident
Short-eared owl	Frequent in small numbers
Kingfisher	Scarce
Skylark	Very common resident
Swallow	Common summer visitor. Numbers increased in Aug-Sep when 'passage of many thousands on favourable days'.
House martin	Very small numbers
Sand martin	A common summer visitor
Jackdaw	Large colony in old pollarded trees. [There until recently, when most of the trees were cut down AF.]
Stonechat	Rare summer visitor.
Whinchat	Summer visitor. Bred. c 4 or 5 pairs per mile.

Reed warbler	Abundant in reed beds adjacent to Crowland Washes.
Sedge warbler	Common
Meadow pipit	Common resident. In 1956 c 14 pairs per mile.
Yellow wagtail	Summer visitor and passage migrant. Cambs Bird Club recorded 20-30 pairs per square mile.
Red-backed shrike	Pair near Cowbit, May 1953; female recorded May 1956.
Reed bunting	Common resident.
Sparrow hawk	Rare. One recorded per year 1953-1957 inclusive.
Black tern	Spring and autumn migrant in small numbers.
Common tern	Summer visitor & passage migrant.
Wigeon	Present all winter. Maximum numbers February-March.
Teal	Small numbers in winter. ?Used to breed.
Pintail	Winter visitor. Up to 350 in 1952.
Pink-footed goose	October-March. Max. 258 in 1956.
Bittern	Two in 1954; one in 1955/56.
Moorhen	Very common resident. 'Breeding in every available pond, dyke and along the river'.
Lapwing	A common resident.
Golden plover	Passage migrant. 3000 at Cowbit, November 1956; 4000 at Cowbit, 28 February 1959.

Snipe	A common resident, passage migrant and winter visitor.
Woodcock	Occasional.
Curlew	'Seen in every month'. Largest numbers in winter.
Black-tailed godwit	A few on passage
Green sandpiper	A few on passage
Wood sandpiper	Scarce
Common sandpiper	Regular passage migrant
Redshank	Resident. 1953: 60 pairs and records of breeding.
Greenshank	Regular passage migrant.
Mammals	
Noctule	Frequently seen
Daubenton's bat	Very common
Pipistrelle	Small numbers.
Otter	Evidence ('kills') frequently found along the New River and Welland. Occasionally heard at night. Bred until about 1950 in osier holts - which were subsequently grubbed up.
Brown hare	Common. 2-3 pairs per mile.
Water vole	Common along all water courses.
Reptiles & Amphibians	
Common frog	Very common.
Smooth newt	Frequent.
Grass snake	Occasional in Cowbit Wash, more frequently in Crowland Wash.

In March 1947 a combination of rapidly melting snow and high tides had caused vast amounts of water to enter the upland river systems. The surplus water that came pouring down the Welland was released into Cowbit Wash, but the volume of water was so great that even the washlands couldn't cope. The water hit the bottleneck at Spalding and backed up, causing such severe flooding that the river bank burst and Deeping Fen only just escaped being flooded.

Cowbit Wash's days were numbered. In response to the 1947 floods, plans were drawn up to excavate a relief flood channel round Spalding. This was opened in 1953 and, appropriately enough for the times, called the Coronation Channel. From that day on the washlands ceased to be flooded, the quality of the grassland deteriorated, and in 1961 a massive drainage operation took place, when 17½ miles (26 km) of dykes and drains were cleaned and deepened, and the water table lowered by three feet (1 metre). Further drainage followed, with the building of a new pumping station, and today much of Cowbit and Crowland Wash is indistinguishable from the surrounding farmland.

The present day

In the thirty years since we've lived in the area there has been a slow but steady improvement to at least some of the marginal habitat - the grass verges, the river and drain banks and the watercourses. This has accelerated in the last ten years, with a greater awareness developing amongst internal drainage boards (who manage all but the rivers), the Environment Agency, some of the three local authorities that cover the area, and also some of the farmers and other land managers. Arnold Smith died in 1995, but by then South Lincs Nature Reserves had become almost moribund and in 1992 was amalgamated with the Lincolnshire Wildlife Trust, along with its main reserves - Arnold's Meadow at Spalding, a brilliant piece of habitat recreation long before it became accepted policy; Moulton Marsh, another piece of habitat recreation alongside the tidal Welland; and the Crowland Ponds, a chain of borrow pits on the Deeping Fen side of the Welland.

But what of the unprotected habitat? On the south side of the Welland bank at Fosdyke a good population of pyramidal orchids *Anacamptis pyramidalis* can be found amongst many more typical grassland plants such as lady's bedstraw *Galium verum*. Parts of the banks of the Vernatt's Drain are botanically very rich, and are managed sympathetically by the Welland and Deepings Internal Drainage Board. On the banks of the South Holland Main Drain, near its outfall into the Nene at Sutton Bridge, can be found hundreds of common spotted *Dactylorhiza fuchsii* and southern marsh *D praetermissa* orchids every year (plate 4). This latter site, long unprotected, has now been put into countryside stewardship by the South Holland Internal Drainage Board to improve the management.

Over towards Market Deeping a small, the Cross Drain has so many rare beetles in it that it has been made a SSSI - while the Counter Drain at Baston Fen, is becoming a Special Area for Conservation, this time for a small fish, the spined loach *Cobitis taenia* (plate 5).

What all these sites have in common is that they are on the margins. Mostly, to appreciate the wildlife of the fens, you have to look down into dykes and drains, or on to river banks, and there you can still find commoner wetland or grassland species in all their diversity, from the wainscot moths that live in the stems of reeds and reedmace (plate 6), to rare beetles, to purple loosestrife *Lysimachia salicaria* and common fleabane *Pulicaria dysenterica*, to harvest mice *Micromys minutus* and even again, along the Welland, otters *Lutra lutra*, last recorded from Cowbit Wash in the 1950s. Slowly the colour is returning to the dykes and drains, but there's along way to go yet.

Harvest mouse photo PNWatts

Of course, what the visitor still sees is mile upon mile of arable farmland, but even this is changing. Parts of the marsh area have always had a reasonable amount of hedgerows, but many more miles have been planted in recent years (the 'hedges' of the fens have always been the dykes). Surprisingly, there are still a few remnants of wet grassland and/or pasture, such as at Donington, Fleet Fen, and Moulton Chapel, as well as along the Stickney-Stickford ridge (plate 7). Some farmers are going a stage further and enlisting Farming and Wildlife Advisory Group's assistance to make big environmental improvements - at one farm at Gedney Drove End an old remnant creek, left behind after another section of the outmarsh was embanked, and slowly being filled in over the years, was re-excavated in the winter of 1999/2000. The following year avocets *Recurvirostra* *avosetta* bred there!

Closer to my home in Spalding, a large borrow pit adjacent to the now disused March railway line, one of three which had been dug in the 1870s to build up the railway bank, had lain undisturbed and silted up for years, with a small level of pollution from about a third of its having been filled in in the 1980s. In 1998 part of it was dug out as part of a conservation project connected to an adjacent housing development. Two years later blue water speedwell *Veronica anagallis-aquatica*, fine-leaved water dropwort *Oenanthe crocata*, water crowfoot *Ranunculus trichoplyllus*, water plantain *Alisma plantago-aquatica*, branched bur-reed *Sparganium erectum* and a stonewort *Chara sp* had all appeared. This is a site that I have been monitoring for years and these were all new records. The site has always been good for a number of birds because of surrounding trees, but now reed warblers breed regularly there, and two pipistrelle bats *Pipistrellus pipistrellus* make it their first port of call after leaving their roost in a bungalow the other side of the hedge: prior to the restoration we had never recorded bats there. In one of the other ponds a number of less common water beetles have been found, including the RDB3 beetle *Agabus undulatus*.

Rare water beetle *Agabus undulatus* photo RS Key

At least two farmers that we know have converted to organic production. One has now converted his whole 1700 acres; the other is doing it in smaller stages. It has not been easy - years and years of degradation of the soil cannot be reversed overnight - but the benefits to wildlife are already turning out to be considerable and both farmers have reported an increase in their breeding bird populations, with, in 2001, corn buntings nesting on the latter farm for the first time for eight years (plate 8).

However, although the intensification of agriculture has generally done enormous damage, not everything has suffered. Who would have believed, fifteen years ago, that marsh harriers would return to the Fens? But from one pair 15 years ago, they have now spread all over the area. The attraction? The very winter wheat which has caused so many problems for skylarks and lapwings is just the right height for them to nest in by the spring.

The future

I feel very hopeful for the overall future of the fens. There is still a long way to go - the little pasture fields along the Stickney-Stickford ridge, as mentioned above, bounded by good hedges, are now under threat because the repercussions of the cattle disease BSE and the 2001 outbreak of foot and mouth disease mean that fewer farmers are keeping stock, which will have a knock-on effect for grassland invertebrates - but overall there is steady progress in the right direction, with very many people working together. At least the level of damage appears to have bottomed out and in many cases species populations are beginning to recover, as can be seen in the accounts above, showing that sites don't necessarily even need to be very big.

Looking outside the area, however, conservationists in both the voluntary sector and in government organisations such as the Environment Agency and English Nature are beginning to look at bigger wetland projects, in some cases much bigger projects, such as the National Trust's plans to considerably extend Wicken Fen, and English Nature's plans to link Woodwalton and Holme Fens, all in Cambridgeshire. In the Lincolnshire fens so far we only have the Environment Agency's Hagnaby Lock wetland site in the West Fen near Stickford, which is already attracting substantial numbers of wildfowl - and where pipistrelle bats were recorded feeding for the first time last year - but what if a bigger wetland site were to be created? The Lincolnshire Wildlife Trust has some ambitious plans for the Thurlby Fen area, on the fen edge, which look like coming to fruition, but what if part of Cowbit or, particularly, Crowland Washes were to be restored to wet grassland? I am assured that this would be very easy to do, simply by blocking some of the dykes to raise the water table, a small part of it is still grazed, many of the commoner fenland plants are still there and there is still a lot of peat. The fens of the south of the county tend to get forgotten about, because the Welland and Glen 'catchments' are managed by a different branch of the Environment Agency from the rest of the county, and for the reasons outlined in this address, but if Peterborough can carry out a very similar project along the Nene Washes and with the current requirements for farmers to diversify, then why not Lincolnshire? I am sowing the seeds of this idea to anyone who will listen - and I am not alone! Already one local resident has bought 6 acres of land at Cowbit Wash, in which he intends to restore some of the pits that were filled in in the 1950s, and a local farmer has said he would like to see the Washes flooded again. It would be good to see such a project come to fruition in my lifetime.

Acknowledgments

My thanks to John Redshaw for the useful discussions we have had when I was formulating this address, and for locating his invaluable 1950s notes at Spalding Gentleman's Society's library for me to borrow; also for permission to quote from his species lists and for checking the manuscript for the inevitable errors and confusions. I would also like to thank the many other people whose brains I have 'picked ' over the years, which have helped me form my present views on the Fens, some of whose names I don't even know, but including Kay Heath, who taught me a great deal. Thanks, too, to South Holland District Council for permission to use the map of fen edge churches.

Annette Faulkner was the 108th President of the Lincolnshire Naturalists' Union and the article above represents her presidential address to the Union, given at Whisby Nature Park in March 2002.

She grew up in Leicestershire and originally trained as a nurse, but in a career switch became a music teacher in 1967. She married Colin in 1972 and moved to Lincolnshire the following year, spending the next 22 years working as a piano teacher. A lifelong naturalist, she joined the Lincolnshire Trust in 1974 and the LNU 1988. She was first a helper and then leader of WATCH groups from 1983-1995. She became involved in a (successful) one-woman campaign to save a section of the disused March railway line in Spalding, in the mid 1980s. From 1994-2000 she set up and managed the Vernatt's Nature Reserve in Spalding for South Holland

District Council, which was designated a Local Nature Reserve in 1997. From the early 1990s she became involved with Colin's interest in bats and in 1995 took over as county recorder for Lincolnshire Bat Group and the LNU. She gained her roost visitor's licence from English Nature in 2001, and is currently a volunteer bat warden for them covering, with Colin, a large area in south Lincolnshire.

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DEER PARKS IN LINCOLNSHIRE, THEIR ASSOCIATION WITH ANCIENT WOODLAND

Chris J Manning

The stories of England's Forests and Parks are part of our childhood history lessons, areas such as the New Forest and Sherwood are well known and now important areas for conservation and as part of our cultural landscape. In Lincolnshire Kesteven Forest is occasionally mentioned, "*The herd in Grimsthorpe Park near Bourne, is said to be descended from the wild deer which in former days roamed over the Forest of Kesteven. More evidence on this point would be very interesting*" (Blaythwayt, 1912). In fact 'Kesteven' is not mentioned in the Domesday Book, so dates from after 1086. We know that nationally Forests started to decline from the 13th century and in the 'Kesteven' area "assarts" date from 1190 for Holywell, with Careby in 1199 and Aunby in 1219 (Platts, 1985). Assart is the name given to land formed out of part of a wood, common or Forest, and the right to assart were probably sold. The Crown started a park at Holywell in 1291 (Cantor, 1982) with wild deer often caught for both the initial stock and later restocking, in this aspect of their use Parks act as a trap and storage area for wild venison, the history of Holywell Park is unknown, could it have been used to catch the wild deer as the area was deforested?

Grimsthorpe Park (plate 9)
This park is now an SSSI and the "*only one to have been investigated*" (Smith, 1996), yet it is the site of a 12th century Cistercian Abbey, if the white monks had kept deer the lineage of the Park and Red deer could be traced back to the ancient forest. In fact the monks were good farmers, producing and trading wool (Day, 1950), venison was not traded during this period "*venison … is neither bought nor sold by the right owner*" who gave "*away their flesh* " (Harrison, Description of England) in (Birrell, 1987), and as a luxury meat did the monks need it, it is unlikely that the monks maintained a park for the deer. The Parks refered to by Blaythwayt were abandoned in 1949 (Whitehead, 1964), but

The deer herd and ancient trees at Grimsthorpe Park photo P Grimes

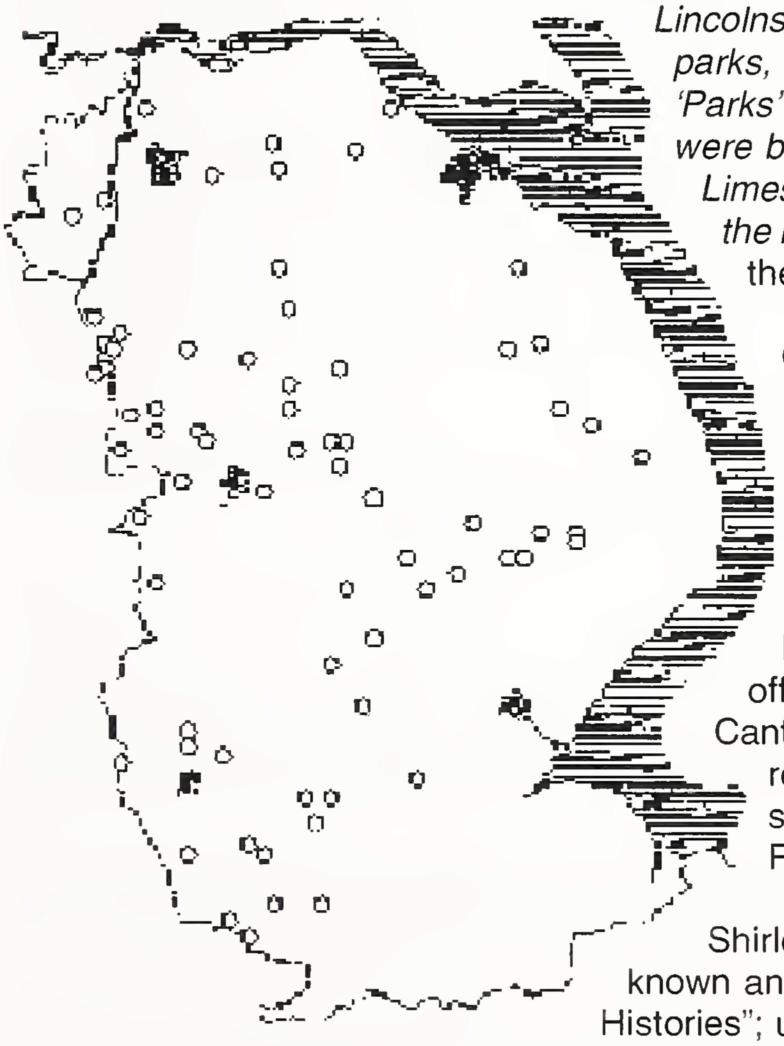
had not been established until 1536 (2ANC2/3/10, Lincolnshire Archives), however sheep farming may have maintained the wood pasture flora since the disbandment of the 'forest'.

Have we any other Parks in Lincolnshire?

"*Ancient parkland is not very common in Lincolnshire as the county does not have many parks, and few are medieval in origin.... Most 'Parks' date from the 17th and 18th centuries and were built along the edges of the Wolds or the Limestone, and many have been destroyed in the last 50 years*" Farrow & Wright, 2000), are these statements true?

Cantor's (1983) 'The Medieval Parks of England' is the primary source of data for Parks, with coverage of Parks from 1201 to 1472. Cantor (1983) includes records from; the medieval royal household and administration, the Pipe Rolls, Charter and Patent Rolls and Inquisitional Post Mortem mostly from the public records office and many local county record offices. Cantor (1983) only provides the earliest reference to individual Parks and without subsequent evidence means that the Parks establishment cannot be confirmed.

Shirley's (1867) 'English Deer Parks' is well known and used in some of the "Victorian County Histories"; unfortunately only Volume One has been produced for Lincolnshire.



Parks in Lincolnshire

Sources used by Shirley (1867) are;

Christopher Saxton's 1576 map of Lincolnshire (Saxton, 1992).
John Leland's Itinerary Bell (Smith, 1907).
Kip's View of Seats.

A copy of Kip's View of Seats was not available, Shirley (1867) only used it for one Lincolnshire Park, (Doddington) when the owner states, "*We have no evidence either way about the deer park, but it is completely clear from evidence on the ground (hedges, ditches, etc.) that the avenue never existed.....I seriously doubt whether the deer park ever existed. What you can see in the Kip engraving is I believe a purely stylised landscape, in an area that at time had fairly large fields and was probably post Enclosure... My personal experience of Kip engravings is that they are extremely accurate on architectural detail and garden layouts as far as about fifty yards in all directions*" (Jarvis, 1999).

John Leland's Itinerary (Smith, 1907) is a fascinating read but with only limited coverage of Lincolnshire. Certainly Leland visited Irnham but did not mention the park (Smith, 1907), several references are available for this Park and I suspect that he only reported matters which he found interesting, perhaps the then owners were more interesting than the deer in this instance.

Christopher Saxton's 1576 map (Saxton, 1992) was an important document for Shirley's work with his interpretations accurate. The map is a remarkable document, as the survey of Lincolnshire was undertaken in only one month (Saxton, 1992). In Saxton's recording of Parks he omits Burghley, (Established c1561) which though not in Lincolnshire abuts the county boundary, yet Lord Burghley commissioned his work in his capacity as Lord Treasurer and had all proof copies of the maps sent to him (Saxton, 1992). Why Burghley Park is missing from Saxton's maps is unclear, possibly other Parks are missing for similar reasons.

The maps of; John Speed's map of 1610 (Speed, 1988) and Herman Moll's 1724 (Beresiner, 1983) were used in this study but appear to largely duplicate Saxton's work in documenting Parks. Shirley's (1867) work on 'then' current Parks combined with Whitaker (1892) and more recently Whitehead (1950 and 1964) and Hingston (1988) were used in this work in preference to Ordnance Survey maps which include latter landscaped Parks where deer may never have been kept.

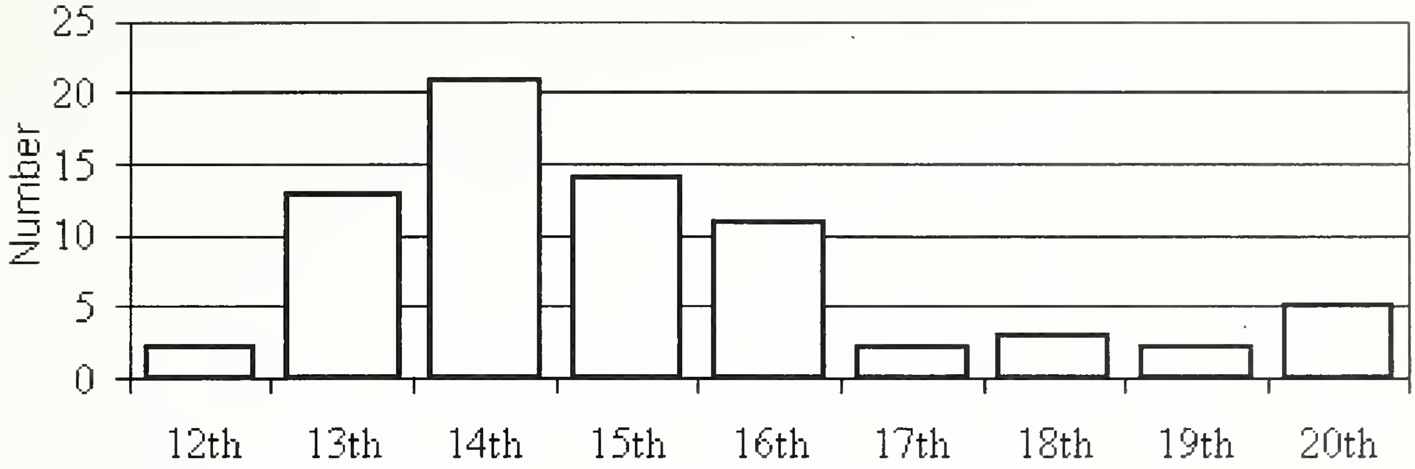
This study's main source of archaeological evidence is Everson, Taylor and Dunn's (1991) "Change and Continuity, Rural Settlement In North-west Lincolnshire". Field names may indicate past Parks, but have not been investigated at this stage.

Parks in Lincolnshire

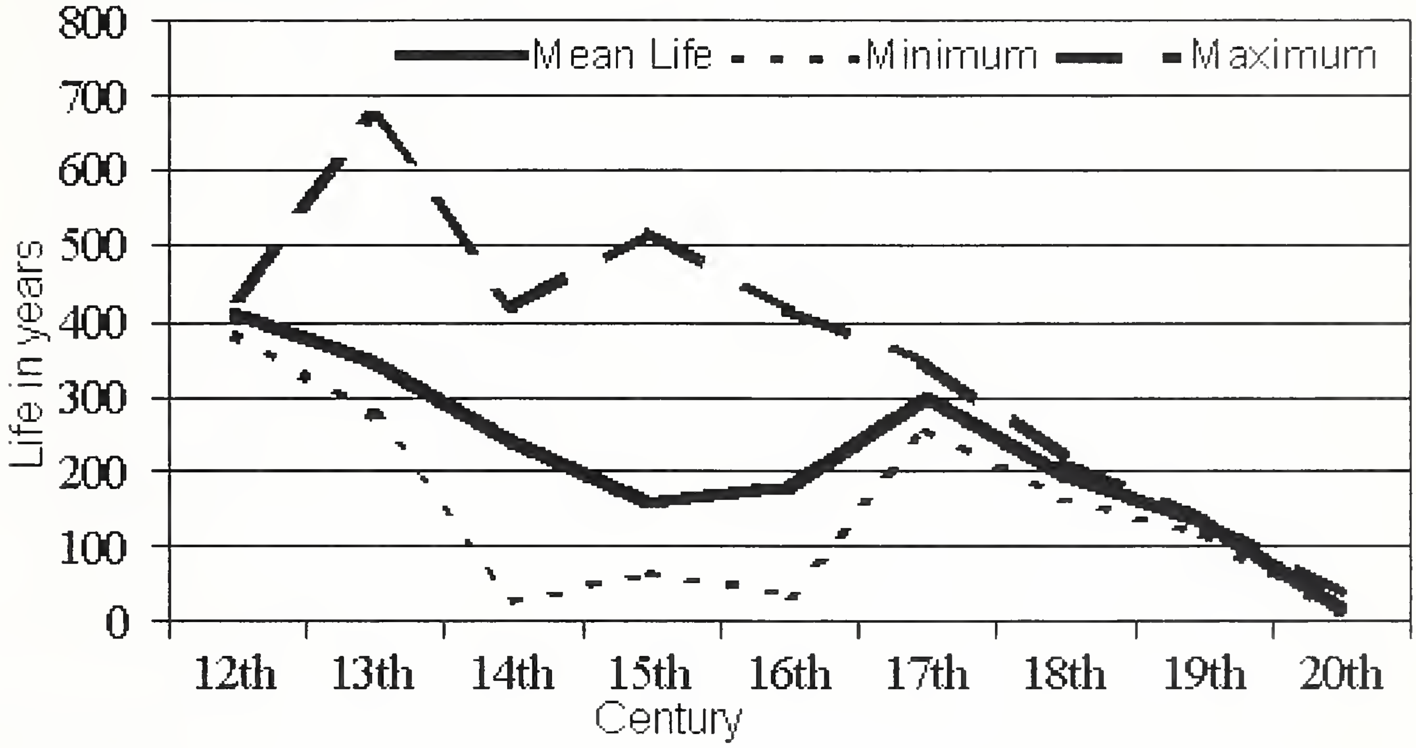
The number of Parks created each century varies, with a peak in the 14th century, the 20th century increase is notable, it includes short lived Parks such as Irnham which was abandoned after 20 years, others such as Holton's Covert owned by Conoco which may have a longer life.

The life of a park also varies, however the records have a significant gap from Cantor's last record in 1472 until Saxton's map of 1576, while the life of 'current' Parks omits their future existence, both factors may distort any conclusions.

An ANOVA was used to test the hypothesis is that Park life does not vary over the centuries. The P-value calculated is 5.57E-07 with an F-critical value of 2.086757434. This



Parks created each century



Life of parks

analysis shows that there is no association between a park's life and the century of its establishment in Lincolnshire.

What is a Park?

The word Parke is of French origin and denotes a hunting area or enclosure (Muir, 2000), or from the Anglo Saxon *pearroc*, any piece of land with a fence around it which later was a place for keeping deer, with the earliest meaning existing in Cornish and Welsh place names (Rackham, 1976). The classical park was an enclosure for semi wild animals, commonest fallow deer, and red deer, semi wild cattle we hear of hare and swine Parks, other land uses included pasture for cattle and sheep, sometimes even arable meadow and common grazing (Rackham, 1976). Parks developed as private places for keeping deer, (Rackham, 1986^{A}) and were owned by the lord of the manor as part of his demesne land (Cantor, 1983). Parks were often associated with lawns from the old French *Launde*, which existed as clearings in woods (Muir, 2000).

Parks were typically enclosed with substantial earth banks topped with a wooden paling fence with an inside ditch, in some districts the wooden fence might be replaced with a quickset hedge or a stone wall, or where the topography allowed just a pale (Cantor and

Hatherly, 1979). Banks are a common feature of medieval landscapes, early wood banks are up to 30 ft wide with rounded shape, the flatten type are associated with deer Parks (Rackham, 1976). Parks tended to be oval or roughly circular in shape (Muir, 2000) and typically of 1-200 acres in size (Rackham, 1986^A) and were frequently located on the edge of manors, away from the cultivated land and included woodland (Cantor, 1983), their limits often coincided with manorial or parish boundaries (Cantor and Hatherly, 1979).

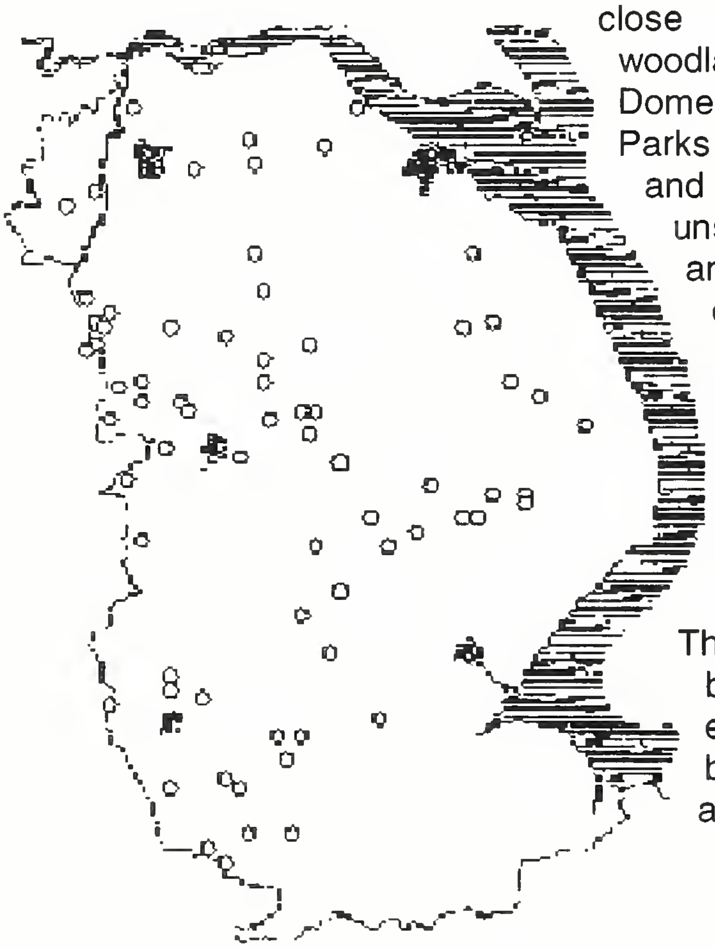
The traditional Parks were mostly established by 1350, thereafter, plagues, the civil war and agricultural prosperity caused their decline (Rackham, 1986^A). In the later Middle Ages during periods of agricultural decline some larger Parks were created, Eagle at 4,600 acres (1,862 hectares) was perhaps only exceeded in size by the Royal Woodstock Park, which extended to some 10,000 acres (4,040 hectares) (Cantor and Hatherly, 1979). It is doubtful if Eagle was enclosed by a conventional pale, created in 1446/9 it does not appear on the maps of 1576 (Saxton, 1992) and was probably created for amenity use (Cantor and Hatherly, 1979). Other Parks are associated with the 'Country Houses' built from the 16th century (Hoskins, 1992). New sites for 'Country Houses' were rare, they were either on the sites of medieval manor houses, within villages which had to be moved to create the fashionable parkland, or the development of past manor houses in villages removed by medieval sheep farmers (Hoskins, 1992).

The Parks Influence On The Landscape

Parks are much more strongly correlated with Woodland than are Forests and occurred in areas where Domesday records had large swine entries with many less intensively managed woods becoming Parks by 1300 (Rackham, 1986^B). Traces of the Parks contribution are still evident; parts of the earth bank, curving hedges, field and farm names (Cantor, 1983) with Birrell (1987) stating that Parks helped preserve woodland and pastures in the thirteen century (Birrell, 1987).

Within individual counties, there is frequently a close correlation between areas of high woodland cover, as shown for example by the Domesday Survey, and areas containing many Parks (Cantor, 1983). Areas already settled and under cultivation at this time would be unsuitable for hunting while the wooded area would be eminently suitable for the creation of Parks (Cantor, 1983). Within the individual manor there is a similar link between the Park and woodland in that the former was very frequently located in wooded areas on the edge of the manor beyond the cultivated area (Cantor, 1983).

These conclusions suggest that a link between our 'Ancient Woods' and Parks exists. Lincolnshire's ancient woods have been documented (Hughes, 1988), (Issac and Reid, 1996-97-98).

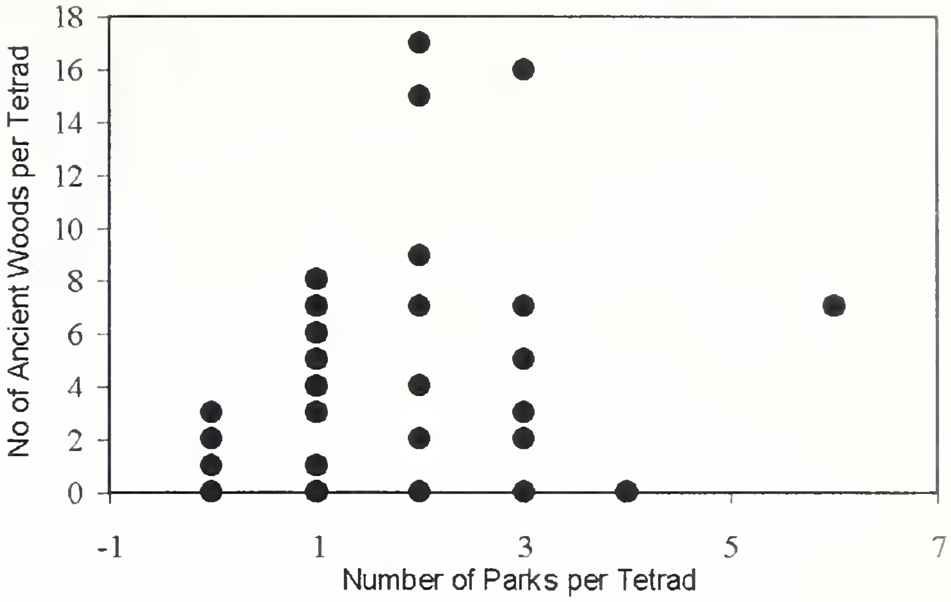


Lincolnshire's Ancient Woodland

Lincolnshire's Ancient Woodland

Ancient woods have to have been in existence since 1600, therefore Parks established after this date where excluded from the analysis. The numbers of Parks and Ancient Woods in each tetrad of the National Grid were counted for the analysis.

Note tetrads with no Parks or Ancient Woods are not plotted



Association between parks and ancient woodland

A Pearson correlation was used, as the dataset was not large enough to yield a reliable result with the Chi-squared test when using tetrad data. The Pearson correlation = 0.390 with a P-Value = 0.005 showing a strong association between Parks and Ancient Woodland in Lincolnshire.

A further analysis for the four 100km National Grid Squares was undertake (Pearson correlation between parks and Ancient Woodland)
SE = 0* 00 P-Value = 1.000 TA = -0.500 P-Value = 0.667
SK = 0.185 P-Value = 0.563 TF = 0.4597 P-Value = 0.008
This analysis demonstrates that the strong association between Parks and Ancient Woodland in Lincolnshire is only statistically proven in grid square TF, in grid square SE no woods are present and in TA & SK the P-Values show that the results are not statistically significant at the 95% level.

Discussion

There is a strong correlation between Parks and Woodland in most of Lincolnshire, so in devising a woodland management strategy we have an opportunity to incorporate English Natures targets for Wood Pasture management that should be considered for:

Sites with a History of Wood-pasture that retain a scattering of veteran trees
Sites close to/adjoining existing wood pasture sites
(Reid, 1998)

However in the majority of cases the boundaries of past Parks are not known, the exceptions include:

Bullington <1148 - 1533>
Everson, Taylor and Dunn (1991) provide an interesting description "*the earthworks survive in dense, modern coniferous woodland, but until 1946 lay in open pasture between Cocklode and Spring woods in Bullington and Great West Wood in Goltho*". Most of Cocklode wood is coniferous with parts of both Cocklode and Great West Wood included in the Ancient Woodland inventory.

Gainsborough Park <1299 - <1601
Gainsborough is clearly shown on maps until 1724, however Everson, Taylor and Dunn (1991) state that it was deparked by 1601. The Park encompasses parts of Bass and Warren Woods. The area of Ancient Woodland in Warren Wood is within the former park.

Goltho Park <1381 - 1630>
An Ancient (replanted) Wood - Pleasure House Wood is entirely within the Parks boundaries. The Forestry Commission sold the wood in the 1990's, time constraints prevented a proper survey for this study, initial impressions are that the ground flora is dominated by Bramble *Rubus fruticosus agg.* that may be shading the woodland plants.

Scriveslby Medieval? - Current
Only one Ancient Wood, Holme Wood - Claxby Pluckacre (TF 2865) is located within the Scrivelsby Estate. The reason for this are not clear, certainly numerous post 1600 secondary woods are associated with the deer park which may not be as old as the owner would like to believe. More research into this aspect of the park is required.

Irnham 1246 - 1914/18
The park was certainly south of the road c1914 when abandoned, but it may have formally been associated with the woods, both Far Old and Old Park Woods are Ancient Woods. The possibility of the park being relocated during the 16th century when it was fashionable to have landscaped Parks close to the house exists, further research on the Parks location is needed.

Grimsthorpe Park 1536> - c1949
This park is not associated with any areas of Ancient Woodland.

Research is needed to establish the boundaries and locations of the other Parks in Lincolnshire. Probably other sites have a history of wood pasture/parkland management and the increasing numbers of wild deer may already be applying wood pasture management, when perhaps coppice management is prescribed by the management plan?

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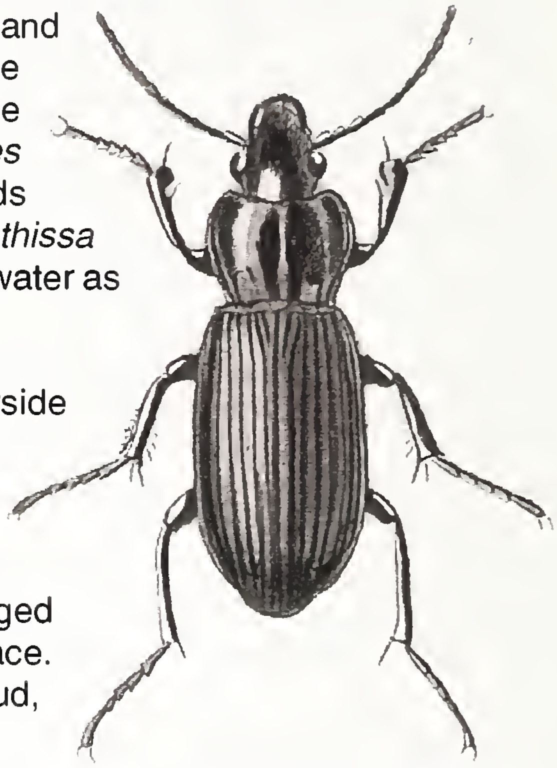
Parks in Lincolnshire

1 Aby
2 Aslackby
3 Barlings
4 *Barwell - Burwell?*
5 *Belchford*
6 Belton Park
7 Bigby
8 Birthorpe
9 Bolingbroke
10 Bourne
11 Brocklesby Park
12 Broughton
13 Bullington
14 Burreth
15 Burwell
16 *Buslingthorpe*
17 Canesby/Normanby
18 *Careby*
19 Castle Bytham
20 Corringham
21 *Doddington*
22 Donington
23 Eagle
24 Easton-1
25 Easton-2?
26 Elsham Hall C-Park
27 Eresby (Heresby)
28 Farlesthorpe
29 Folkingham
30 Fulstow
31 Gainsborough
32 Glentworth
33 Goltho
34 Grimsthorpe Park
35 Haverholme Priory
36 Hexington
37 *Heydour - possible*
38 Holtons Covert
39 Holywell
40 Ingleby - North
41 Irnham-1
42 Irnham-2
43 Kettlethorpe]
44 *Kingerby*
45 Kirby
46 Kirkstead
47 Knaith-1
48 Knaith-2
49 Lea
50 Linwood
51 Louth
52 Melwood
53 Normanby-1
54 Normanby-2
55 North Carlton
56 North Kyme
57 Norton Disney
58 Osgodby/Kingerby
59 Revesby Abbey
60 *Saxby*
61 Scriveslby
62 Sedgebrook
63 Skellingthorpe
64 *Skendleby*
65 *Skillington*
66 Snarford
67 South Carlton
68 South Kelsey
69 Stainfield
70 Stow
71 Sturton By Stow
72 Swinthorp
73 Syston
74 Tattershall
75 Thonock-1
76 Thonock-2
77 Thorpe
78 Timberland
79 Toynton
80 Tumby
81 Washingborough
82 Welby
83 West Butterwick
84 *Worlaby*

Parks in Italics are not used in the analysis

A CARABID BEETLE APPARENTLY HUNTING UNDER WATER

John Bratton



Pterostichus melanarius from Fowler (1887)

Whilst carabids are commonly found in wetlands and many species typically hunt on exposed waterside sediment, it is unusual for them to be found active under the water. Luff (1998) mentions only *Oodes helopioides* having this habit. Forsythe (2000) adds *Carabus clatratus*, and mentions that *Elaphrus, Blethissa* and some *Agonum* and *Bembidion* species will enter water as an escape mechanism.

On 28 May 2001 I was sitting on the bank of Waterside Drain, Winteringham (SE926230), a laneside ditch in arable land, when a large black carabid came into view at the far edge of the water about 8 feet away. It was half swimming and half walking upstream along the muddy edge of the water, virtually submerged but with the elytra and pronotum just breaking the surface. With its mouthparts it was probing the submerged mud, possibly foraging. After a minute it left the water and walked about a foot along the exposed mud, but quickly returned to the water and carried on as before, so it was clearly submerged of its own choice, not struggling to get out. After a few more minutes and having travelled about two yards while submerged, it lost its footing and floated into the weed in deeper water. Here the current prevented it swimming back to the bank and I extracted it from the ditch. Roger Key has kindly identified it as *Pterostichus melanarius*, a common species nationally and in Lincolnshire, and often the dominant carabid in arable land (Luff 1998).

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LINCOLNSHIRE NATURAL HISTORY IN 2001

The evidence of global warming/climate change has continued with various temperature and sunshine records again broken. Overall, 2001 was the second warmest year since records began, although the warmth was in the mild autumn and winter rather than a hot summer.

January and February continued the exceptionally wet conditions of the end of 2000, with some flooding although this was not as bad in Lincolnshire as elsewhere in Britain. It continued very wet through March and pools in fields killed lots of winter wheat. There were quite cool snaps in the late winter, with the hardest frosts for a few years and a couple of blizzard days in March - although the snow soon melted. There was not the early

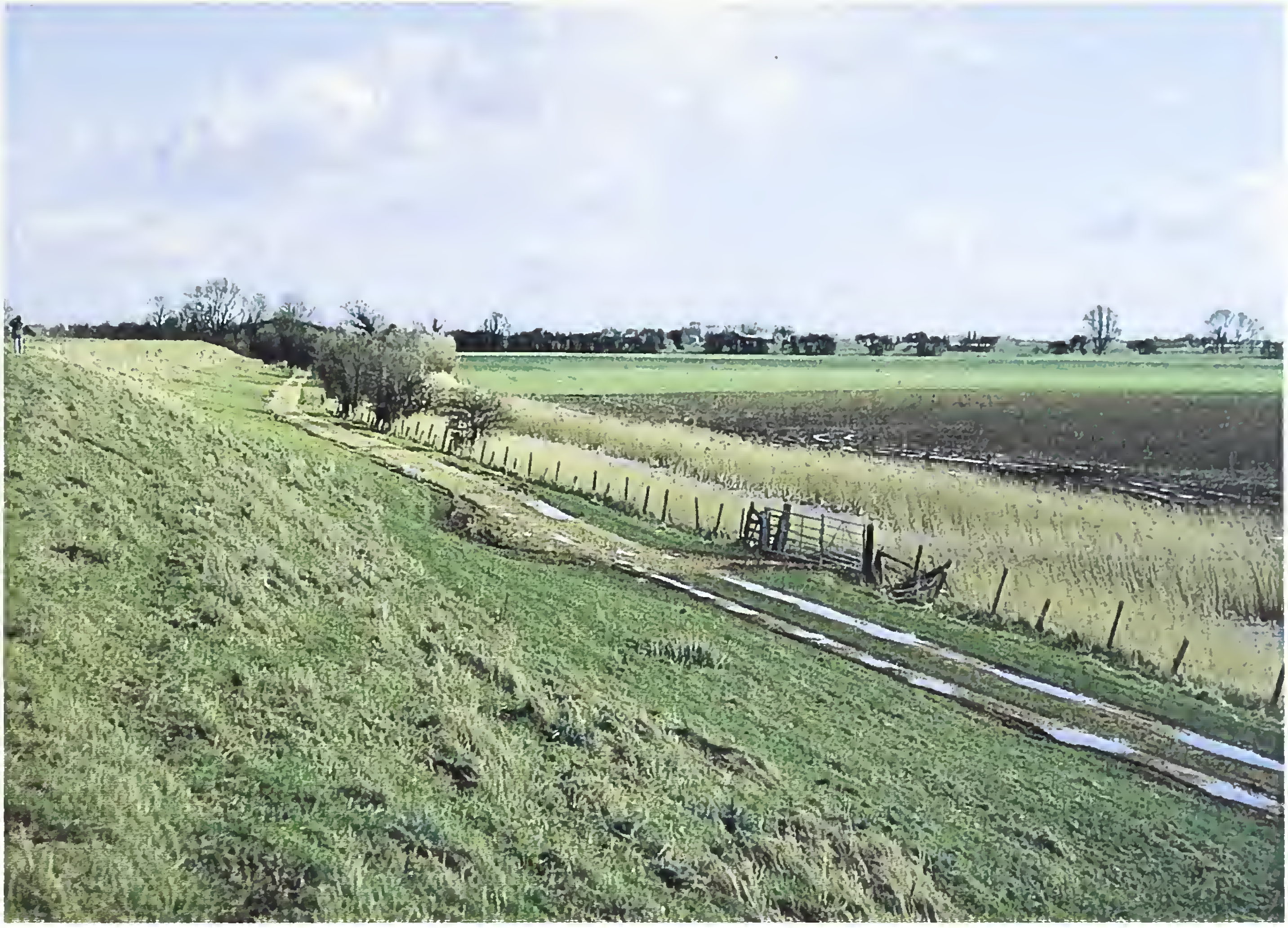


Plate 1 Whereas medieval flood banks were twisty, more modern ones were fairly straight - Crowland Wash Bank at Cloot Corner (page 138). photo Annette Faulkner

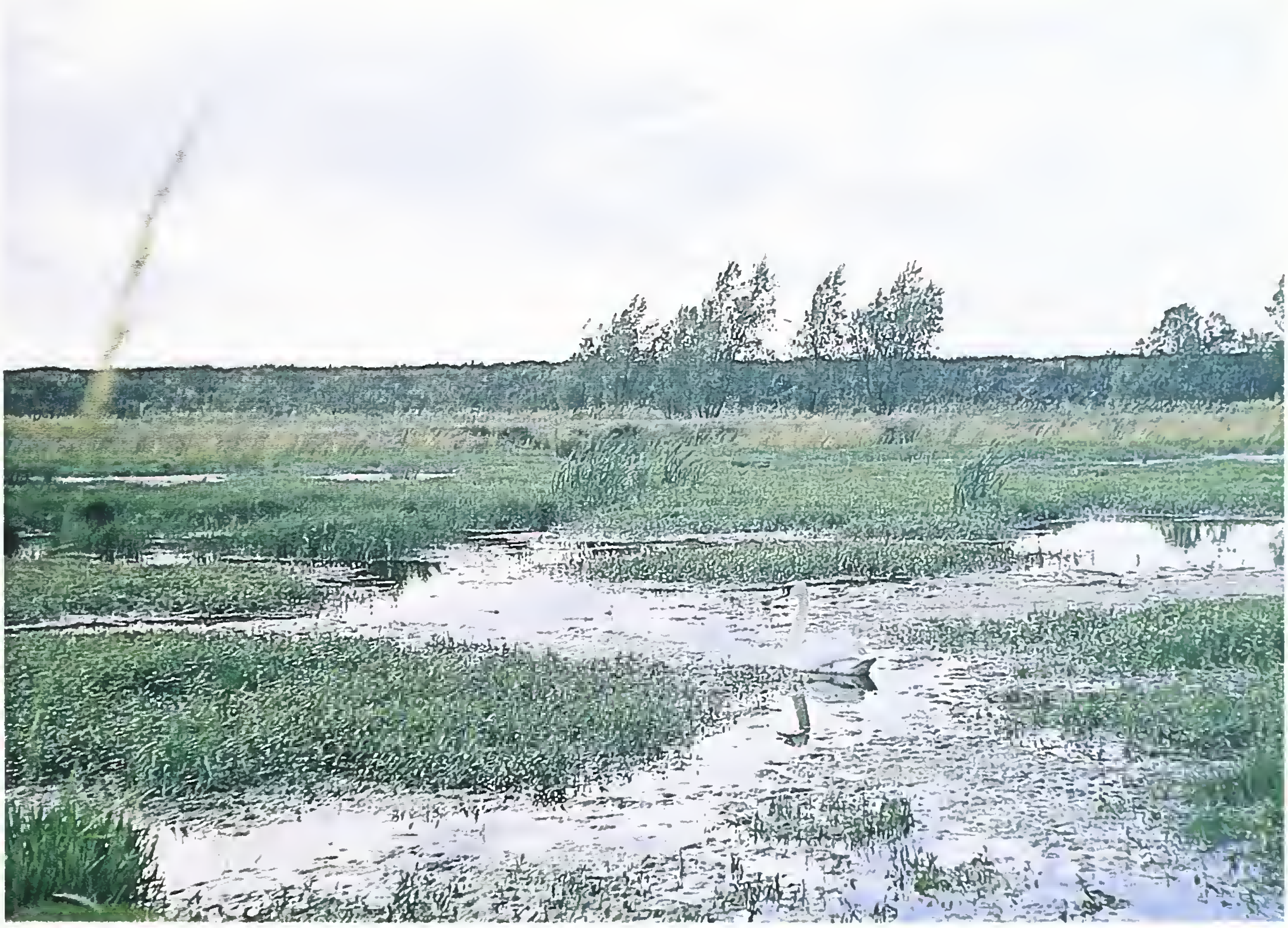


Plate 2 About a quarter of the Counter Drain Washlands became the Lincolnshire Wildlife Trust's Baston Fen reserve (page 149). photo John Redshaw

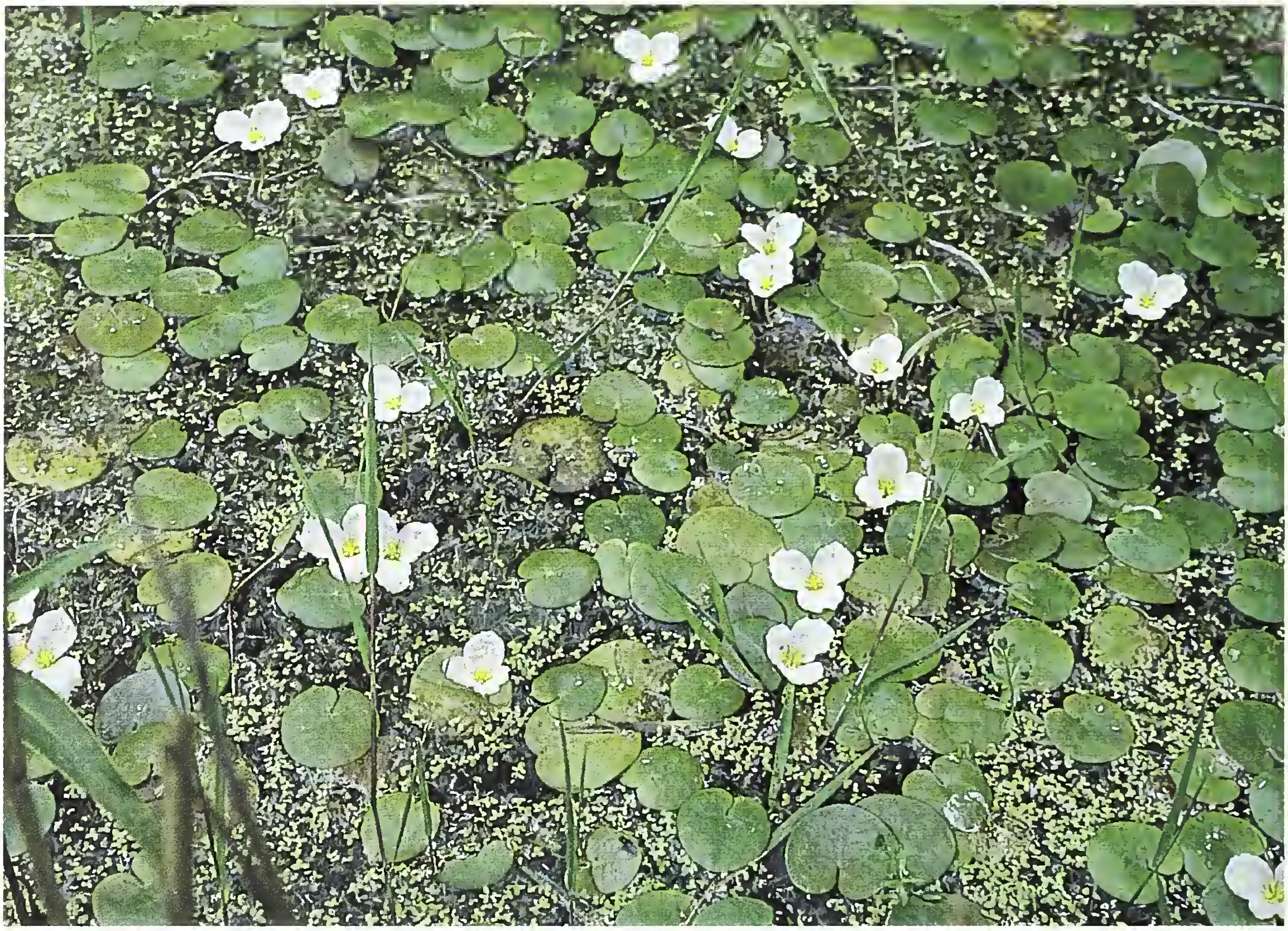


Plate 3 Frogbit *Hydrocharis morsus-ranae* (page 149); a declining fenland plant formerly found at Cowbit Wash. photo Colin Faulkner

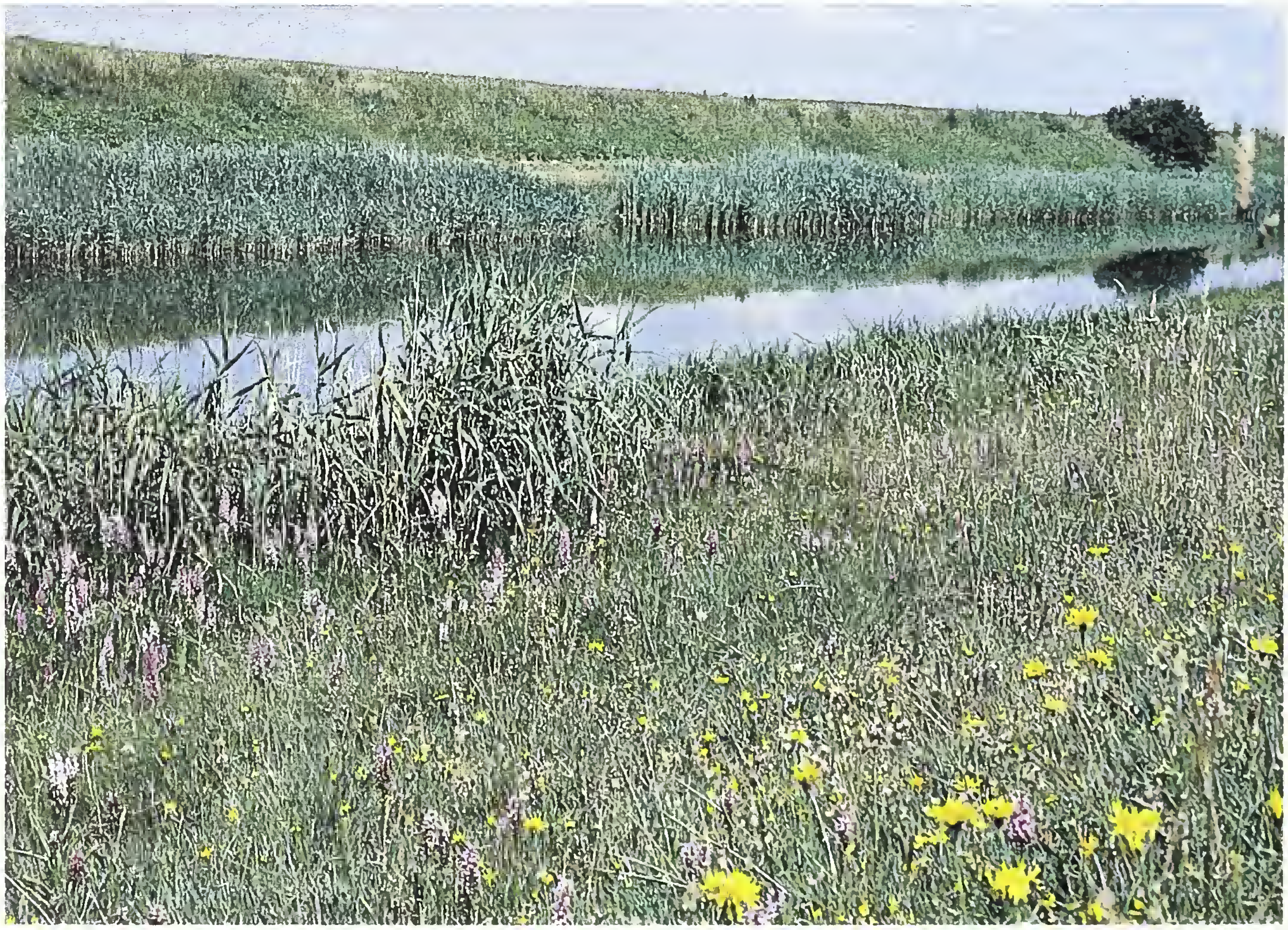


Plate 4 The bank of the South Holland Main Drain supports thousands of common spotted and southern marsh orchids (page 151). photo Kay Heath

Plate 5 The Counter Drain is to become a Special Area for Conservation for the spined loach *Cobitis taenia* (page 151). photo Roger Key

Plate 6 Caterpillars of the bulrush wainscot moth *Nonagria typhae* mine the stems of reedmace (page 151). photo Paul Waring

Plate 7 Small farms with livestock on damp grassland persist along the ridge around Stickney and Stickford. (page 151). photo Garry Steele

Plate 8 The corn bunting is now breeding again on a local farm after partial conversion to organic production (page 152). photo Nicholas Watts

Plate 9 Ancient oaks at Grimsthorpe Park, the only parkland SSSI in the county, on the site of a Cistercian Abbey (page 154). photo Roger Key

Plate 10 Fallow buck at Normanby Park, formerly called Canesby Park and established before 1576. photo Chris Manning

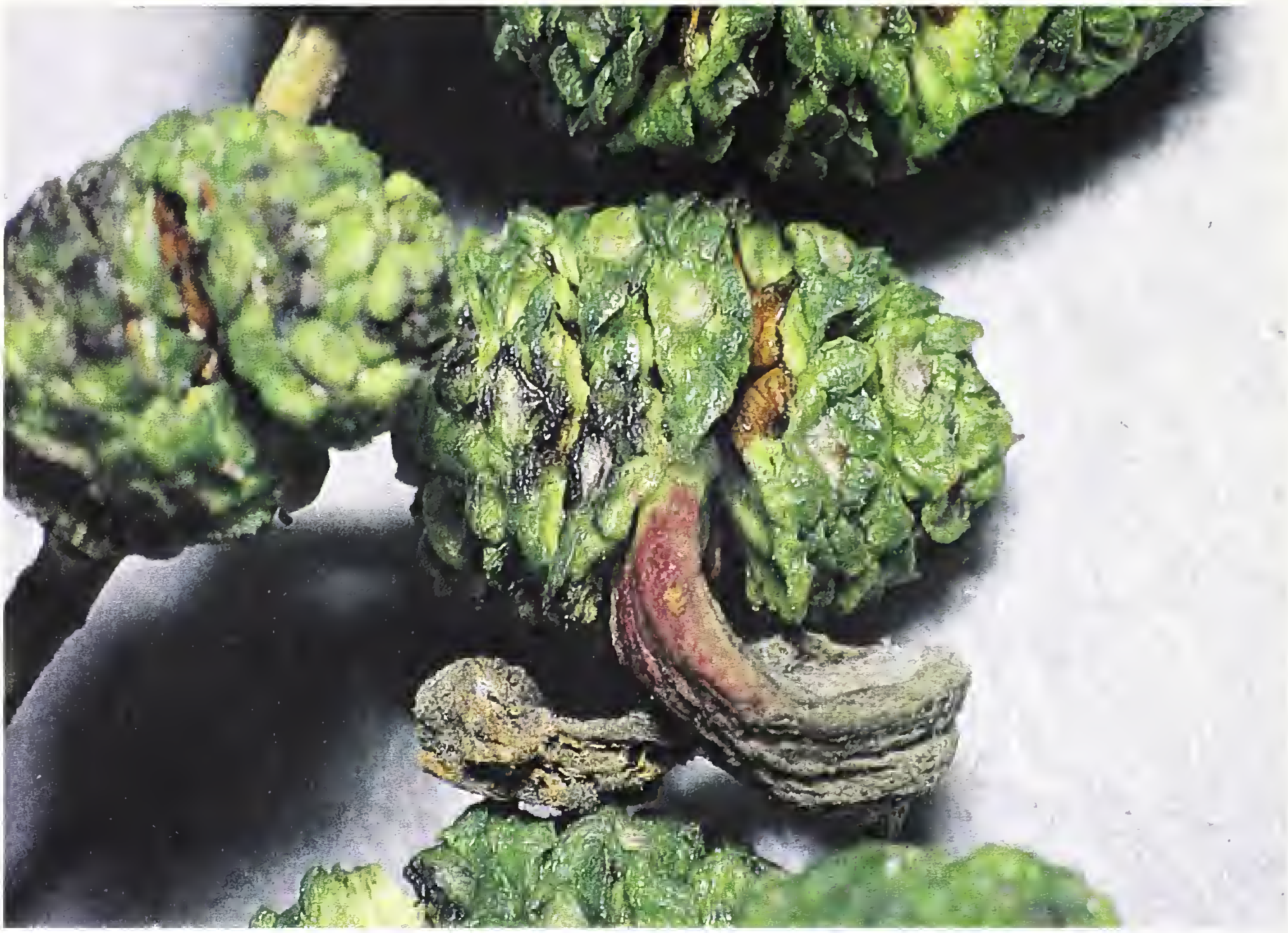


Plate 11 Fruiting body of *Taphrina ametorum* parasitic on alder fruit at Grebby and new to Lincolnshire (page 171). photo Ken Rowland

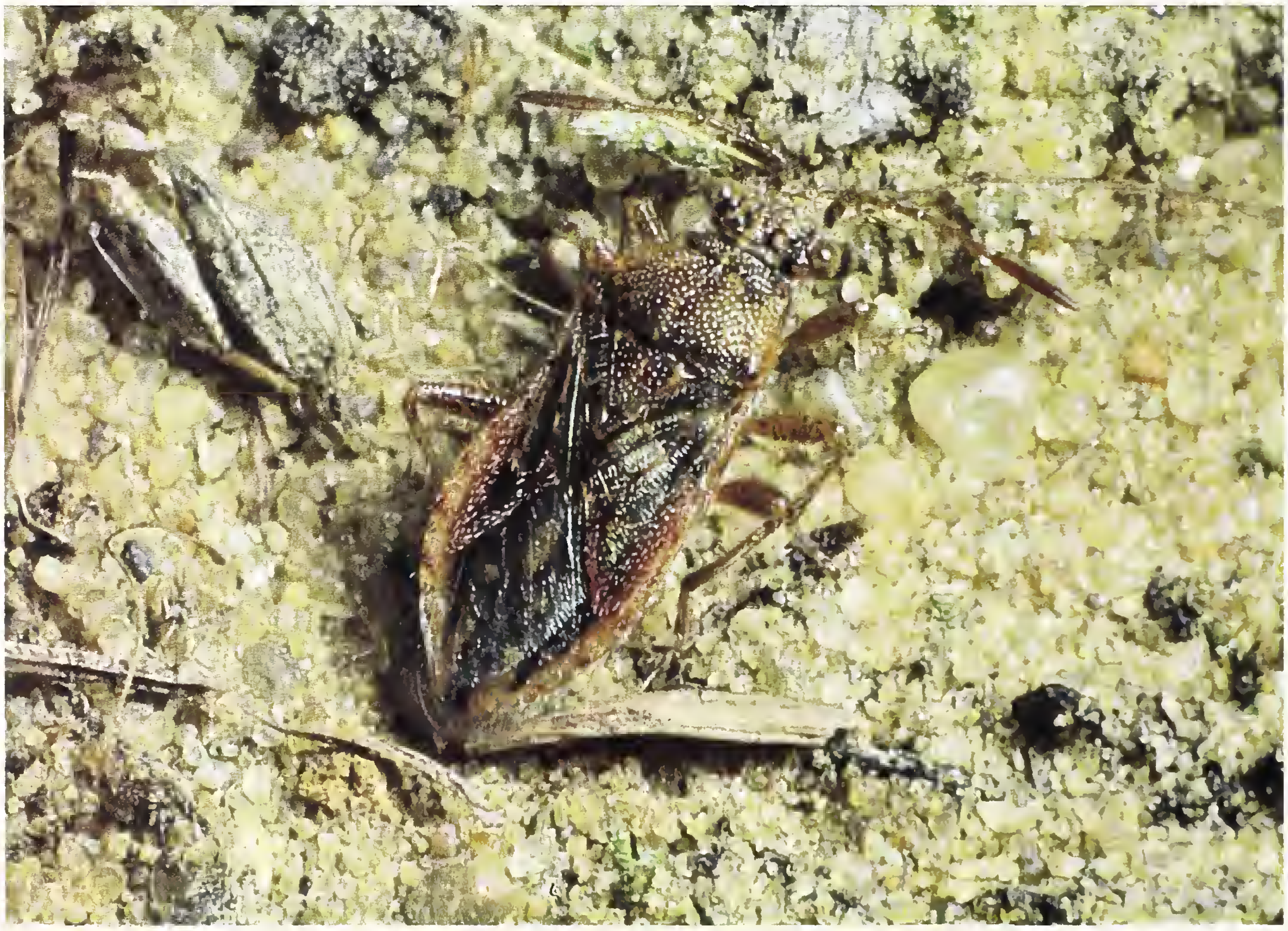


Plate 12 The bug *Rhopalus subrufus* turned up at Porter's Lodge Meadow and was new to Lincolnshire in 2110 (page 178) photo RS Key

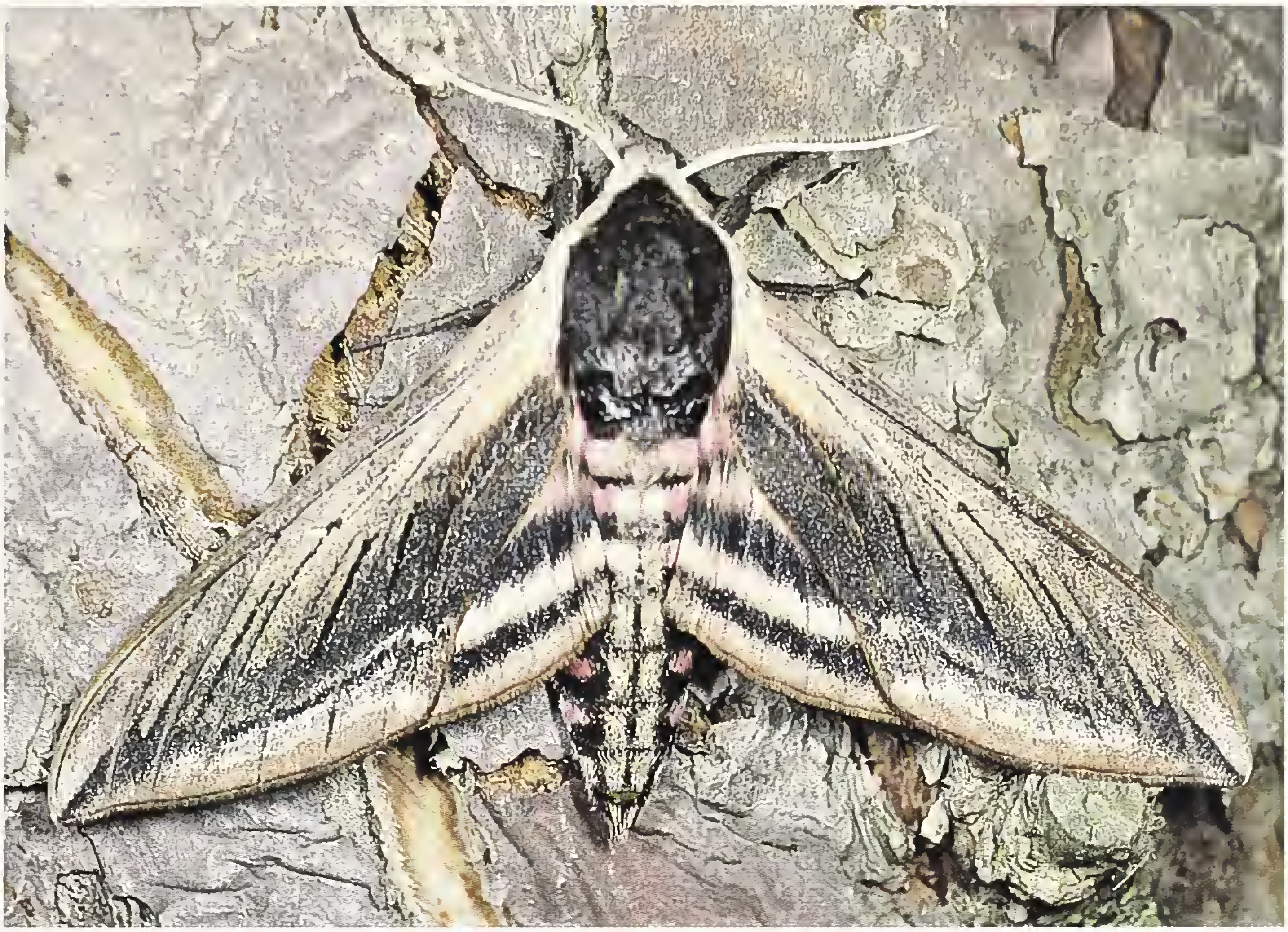


Plate 13 The privet hawk moth *Sphinx ligustri* continues to spread north from its stronghold in the south of the county (page 181). photo Roger Key

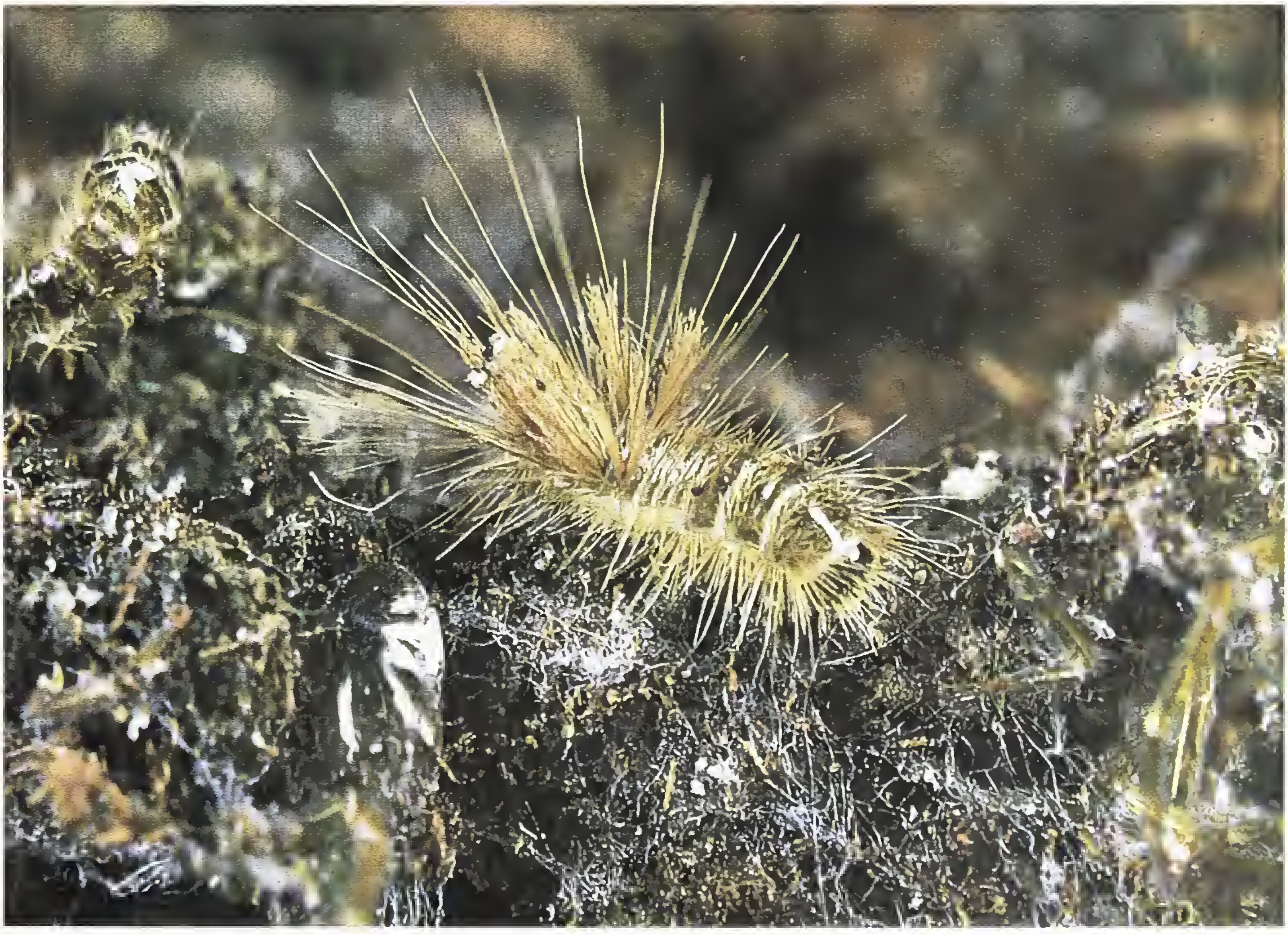


Plate 14 Larva of the cobweb beetle *Ctesias serra* found on a National Trust survey of the dead wood beetles of Belton Park (page 183). photo Roger Key

Plate 15 Release of adults of hazel pot beetle at Whisby Nature Park photo Roger Key left to right Dr Steve Compton, Allan & Annette Binding (page 184).

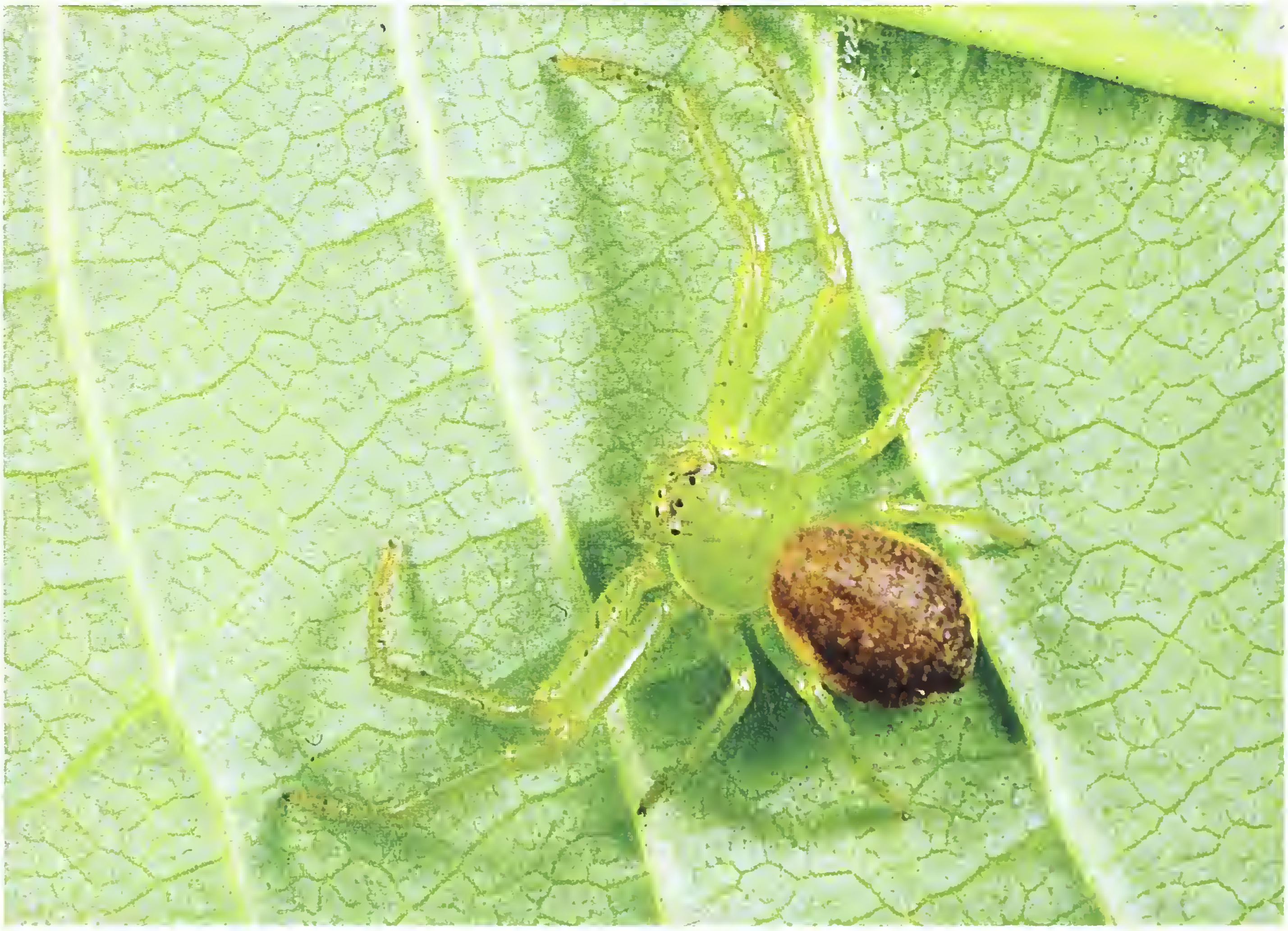


Plate 16 The crab spider *Diaea dorsata* found by John Lamin in Bourne photo Roger Key Woods, the 5th Lincolnshire record. (page 185).

spring of recent years - indeed the weather started to warm properly quite late - the first decent spring day with many bumblebees and brimstones etc was 1st April. Most of April, May and June were fairly cool and very dry, followed by a cool, damp July and August. There was a typical September Indian summer and it remained warm, though not especially sunny, throughout September and into very warm(up to 6°C above normal) wet October, with torrential rain and flooding in the third week - one day receiving the average for the whole month. Overall it was the warmest October since records began in 17th century. The first frost was on bonfire night and first snow on 8th Nov. December again broke records with the sunniest, though by no means warmest, since records began, with a 'settled' high pressure system that gave almost a full month of sharp frosts and crisp sunny days.

2001 was the year of Britain's Foot & Mouth epidemic, the worst the world has ever seen, starting in February and continuing through to September. Although Lincolnshire was not directly affected by the disease, precautionary restrictions stopped almost all access to countryside throughout the county, with public footpaths, nature reserves and country parks all closed. This disrupted the field programme of the Lincolnshire Naturalists' Union in the first half of the season, and bans on movement of livestock affected grazing regimes on heathlands and grasslands in the county. Restrictions in Lincolnshire lasted much later than in most of the country, even though we were not affected by disease at all, and access to the countryside did not get back to normal until the late summer. Almost all recorders included an introductory paragraph on the lack of recording because of foot and mouth disease and these have been edited out for brevity.

Acknowledgments of Records

As always, the county recorders have acknowledged a debt of gratitude to all who have taken the time and effort, very considerable in some cases, to submit records. There are so many who send in records of different groups of animals and plants that individual recorders are now acknowledged together to avoid duplication: V Adams, A & A Binding, J Badley, S Bowtham, K Bradshaw, D Bromwich, A Brownlow, G Clayton, BJ A Credland, J Davison, ME Dawson, C du Feu, B Eke, AP Foster, R Fox, A&C Faulkner, R Goy, H Gregory Z Harris, B Hedley, R&K Heath, B Hedley, NG Hodgetts, W G Hoff, D Hughes, J Jaines, RW&A Johnson, R Julier, R &R Key, P Kirby, Dr P Kirby, D Knight, R Labbett, J Lamin, FR Lammiman, A Lazenby, T Lee, T Ludlow, AT McGowan, N Miller, J Ostler, R Parsons, P Porter, C Potts, B Redman, EJ Redshaw, J Rees, C.Rees, C Rieser, KD&W Robertson, C.Rowe, K Rowland, A Scott, C Smith, P Smith,T Smith, W Smith, J & K Smithers, G. Steele, M Tarrant, H Turner, J Walker, G & C Weaver, I Weston, V Wilkin, KMS Wilson.

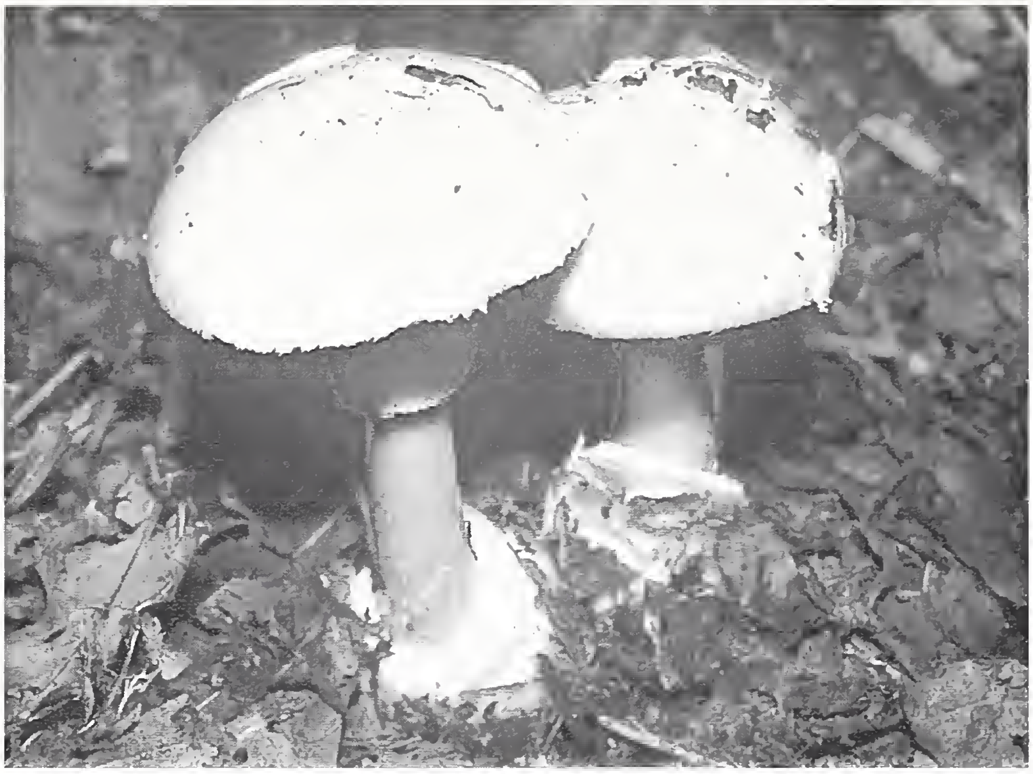
FUNGI - Ken Rowland

Altogether just over a thousand records were made in the year of which nearly 75% were new site records. Only one new county record was made, of *Taphrina ametorum,* a parasitic species on alder (plate 11), from Grebby Hall.

The April LNU meeting at the foundry waste tip at North Hykeham turned up only 12 species - April is not a very productive time of the year for fungi. One, *Peziza varia,* was growing on waste foundry sand seeming to like the substrate. .

Colin Faulkner sent 4 records for Surfleet Lows and 3 records for Spalding from the May LNU meeting and 3 from the August meeting at Welton le Wold.

The ground was very'heavy clay at the Fungus Foray at Wickenby Wood, making life somewhat difficult but nevertheless 76 species were recorded, including 37 new site records, the last foray here being in 1985 shortly after major felling operations. Some very spectacular specimens of *Chlorociboria aeruginascens* were found on an old oak branch



The false death cap *Amanita citrina* var. *alba* photo K Rowland

and a nice specimen of the false death cap *Amanita citrina* turned up.

A visit to Risby Warren on 15th October with English Nature proved very profitable 103 species recorded of which 6 of the wax caps were found including the Red Data species *Hygrocybe calyptaeformis* a very promising site.

MOSSES, LIVERWORTS AND LICHENS - Mark Seaward

Many bryophyte records were added to our registers over the past year, almost entirely due to the invaluable work of Frank Lammiman and Christine Rieser; their most notable finds were *Brachythecium populeum*, *Campylium stellatum* var. *protensum*, *Dicranum flagellare*, *Orthotrichum cupulatum*, *Syntrichia virescens* and *Frullania tamarisci*. As a consequence of their indefatigable work they added 2 new county, 1 new vice-county, 33 divisional and innumerable 10 km x 10 km grid square records to our register; an additional county record (*Lophocolea semiteres*) made by N.G.Hodgetts in 2000 is included in the liverwort list which follows.

The return of epiphytic bryophytes, mentioned in last year's report, continues unabated with species such as *Cryphaea heteromalla*, *Dicranum montanum* and *Ulota bruchii* appearing in various parts of the county.

A further 33 churches were investigated by the author in 2001 as part of the British Lichen Society's churchyard survey; much still remains to be done as only 329 of a possible c.676 have so far been investigated, but it is clear from this work that these habitats provide refugia for locally rare, and occasionally nationally important species such as *Ramalina capitata* (now recorded from five of our county's churchyards) - it remains to be seen what other surprises are in store.

In the light of recent lichenological work, 1 new county, 4 new vice-county, 35 divisional records and many grid square records have been added to our registers. The flora can be summarized as follows: 313 taxa have been recorded from Lincolnshire (300 since 1960), of which 2 and 11 have not been seen for more than 60 and 100 years respectively.

The following moss and liverwort records were contributed by N.G. Hodgetts (NGH), F.R. Lammiman (FRL), C. Rieser (CR) and T. Smith (TS) in 2001 unless otherwise indicated, and all the lichen records were contributed by the author, who is most grateful to Dr B.J. Coppins, Royal Botanic Garden, Edinburgh, for his identification/confirmation of the more critical material.

Mosses

Brachythecium populeum (Hedw.) Bruch, Schimp. & W.Gümbel + 18. (FL/CR) First modern record for the county, there being several dated between 1877 and 1915, but only one of these (from Rasen by F.A.Lees in 1877) is supported by herbarium material.

Bryum dunense A.J.E.Sm. & H.Whitehouse + 9 (NGH)

B. laevifilum Syed + 9 (NGH)

Campylium stellatum var. *protensum* (Brid.) Bryhn + 11 (FL/CR). The second record for VC 54, the only other being that from Waddingham Common (by M.R.D.Seaward in 1963), a unique site sadly destroyed in the mid-1960s, 13 (FL/CR)

Cryphaea heteromalla (Hedw.) D.Mohr + 14 (FL/CR), 16 (FL/CR)

Dicranum flagellare Hedw. + 7 (Hardy Gang Wood, FL/CR, **NCR**)

Dicranella varia (Hedw.) Schimp. + 9 (NGH)

Didymodon rigidulus Hedw. + 4 (FL/CR), 7 (FL/CR)

Eucladium verticillatum (Brid.) Bruch, Schimp. & W.Gümbel + 3 (FL/CR)

Fissidens cristatus Wils. ex Mitt. + 14 (FL/CR)

Hennediella heimii (Hedw.) R.H.Zander + 12 (FL/CR)

Neckera crispa Hedw. + 18 (FL/CR) Only the second modern record for the county, all others dated 1879-1880, only one of which from Broughton (by F.A.Lees in 1879) is supported by herbarium material

Orthotrichum anomalum Hedw. + 4 (FL/CR), 12 (FL/CR)

O. cupulatum Brid. + 14 (FL/CR)

Plagiomnium affine (Blandow) T.J.Kop. + 7 (FL/CR)

P. undulatum (Hedw.) T.J.Kop. + 9 (NGH)

Pogonatum aloides (Hedw.) P.Beauv. + 5 (FL/CR) - only the third modern record, others dated 1877 to 1928

Pohlia wahlenbergii (F.Weber & D.Mohr) A.L.Andrews + 5 (FL/CR)

Polytrichum formosum Hedw. + 9 (NGH)

P. strictum Brid. + 1 (FL/CR)

Rhynchostegiella tenella (Dicks.) Limpr. + 8 (FL/CR)

Syntrichia latifolia (Bruch ex Hartm.) Hübener + 18 (FL/CR)

S. virescens (De Not.) Ochyra + 11 (Rigsby Wood, FL/CR, **NCR**)

Ulota crispa (Hedw.) Brid. + 10 (TS)

U. phyllantha Brid. + 16 (FL/CR)

Zygodon conoideus (Dicks.) Hook. & Taylor + 11 (FL/CR)

Liverworts

Cephalozia bicuspidata (L.) Dumort. + 9 (FL/CR)

C. connivens (Dicks.) Lindb. + 7 (FL/CR)

Chiloscyphus pallescens (Ehrh. ex Hoffm.) Dumort. + 11 (FL/CR)

Frullania tamarisci (L.) Dumort. + 10 (FL/CR) the only modern record; the others dated 1879 (from Broughton) and 1892 (from Alford, see *Naturalist* **27**: 56, 1902) not supported by herbarium material

Lophocolea semiteres (Lehm.) Mitt. + 1 Epworth Turbary, 2001, FL/CR, **VCR**), 5 (FL/CR), 13 (Swanholme Pits, 2000, NGH, **NCR**)

Marchantia polymorpha ssp. *ruderalis* Bischl. & Boisselier + 7 (FL/CR)

Plagiochila asplenoides (L.) Dumort. + 13 (FL/CR)

Radula complanata (L.) Dumort. + 10 (TS)

Lichens

Agonimia tristicula (Nyl.) Zahlbr. + 8

Arthonia radiata (Pers.) Ach. + 7 (only the second record for the county)

Belonia nidarosiensis (Kindt) P.M.Jørg.&Vezda+ 9

Buellia aethalea (Ach.) Th.Fr. + 9

Caloplaca flavovirescens (Wulfen) Dalla Torre & Sarnth. + 1

Cladonia humilis (With.) Laundon + 13

Diplotomma alboatrum (Hoffm.) Flot. + 1

Hypocenomyce scalaris (Ach. ex Lilj.) M.Choisy + 3, 6

Lecanora conferta (Duby ex Fr.) Grognot + 1

L. saligna (Schrader) Zahlbr. + 2, 4, 6 (wooden memorial, Welton churchyard, 2001, MRDS, **VCR**)

L. sulphurea (Hoffm.) Ach. + 11

Lepraria lesdainii (Hue) R.Harris + 7 (Great Sturton church, 2001, MRDS, **VCR**)

Micarea denigrata (Fr.) Hedl. + 13

Parmelia revoluta Flörke + 1, 7

P. saxatilis (L.) Ach. + 1

P. subrudecta agg. + 2, 4

P. verruculifera Nyl. + 11

Pertusaria albescens (Huds.) M.Choisy & Werner + 3

Protoparmelia badia (Hoffm.) Haffelner + 7

Psilolechia leprosa Coppins & Purvis + 11

Ramalina farinacea (L.) Ach. + 2

R. fraxinea (L.) Ach. + 7 (last seen in this division in 1877; very rare in the county)

Solenopsora candicans (Dickson) Steiner + 11 (Bratoft church, MRDS, **VCR**)

Thelocarpon laureri (Flot.) Nyl. + 2 (wooden posts, car park, Burringham, 2001, MRDS, **NCR**)

Trapelia placodioides Coppins & P.James + 11

Usnea subfloridana Stirton + 4

Verrucaria macrostoma forma *furfuracea* B.de Lesd. + 11

Xanthoria polycarpa (Hoffm.) Th.Fr.ex Rieber + 4

X. ucrainica S.Kondr. + 7, 13 (on *Ulex*, N. Hykeham, 2001, MRDS, **VCR**)

BOTANICAL REPORT - Irene Weston

A new British record of *Seseli montanum* (Apiaceae), a close relative of moon carrot *S. libanotis* came from Mrs Vi Wilkin as a garden casual in SE90. It was identified by Tim Rich and confirmed by Mr. M. Southam who commented that it had features typical of plants from the SE of its European range.

A new county record came from Mr John Lamin of spotted spurge *Euphorbia maculata* from the nursery near Bourne. John also records *Digitaria sanguinalis* and *Montia fontana* from the Bulby nursery in TF02, both new to the square.

A small hay meadow in Chambers Farm TF146739 was visited by Toby Ludlow and the Butterfly Society recorders and found to have a large population of meadow thistle *Cirsium dissectum* as well as many other rarities including dyer's greenweed *Genista tinctoria* and saw-wort *Serratula tinctoria*. Over 200 flowering heads of the meadow thistle were counted by IW, PK, ZH, VW and Peter Heywood. The meadow has also been surveyed by Ecosurveys Ltd and English Nature and the Forestry Commission are making plans for its conservation. *Cirsium dissectum* is now only recorded here in Lincs. but has recently been introduced into one Trust Reserve, Scotton Beck Fields. It was previously recorded from Torksey and Roses Plantation, but is no longer in either site.

Mr. Malcolm Pool has continued to record in tetrads for the squares in the south west of the county. He and Mrs. Irene Pool have recorded prickly sedge *Carex muricata subsp. lamprocarpa* (det. IW and PK and confirmed by Mr Arthur Chater) from Morkery Wood in SK91. Violet helleborine *Epipactis purpurata* was re-recorded from Morkery Wood - with our team IW, PK, ZH, VW - about 11 flowering spikes and more eaten by deer. Sea fern grass Catapodium *marinum* and Danish scurvy grass *Cochlearia danica* from the eastern verge of the A1 at Long Bennington (tetrad SK84J). This record of *Catapodium marinum* is of particular interest as inland sites for this coastal plant are nationally rare and this is the first for the county.

Mr Rob Johnson and Mr Peter Acton from the Nottinghamshire Biological and Geological Records Centre have recorded pale flax *Linum bienne* from the A1 verge at Long Bennington in SK84. We have confirmed this on a visit and counted 11 plants in flower and 50 in fruit. *Linum bienne* only very rarely occurs as a casual in Lincs.

Meadow thistle *Cirsium dissectum* now rare in Lincolnshire. photo I Weston

They also recorded sneezewort *Achillea ptarmica,* wood small-reed *Calamagrostis epigejos* and round-fruited rush *Juncus compressus* nearby.

Mr. Ray Maycock, the Botanical Society of the British Isles Recorder for Buckinghamshire sent in lists from Lincolnshire churchyards including Humberston churchyard in TA30, where he found *Calystegia x howittiorum* the rare hybrid between hairy bindweed *C. pulchra* and large bindweed *C. silvatica* found only in Nottinghamshire, Lincolnshire and Yorkshire. Paul Kirby has also recorded this from 3 sites at Waltham TA20. Paul has also found 3 locations on the dunes at Humberston Fitties and Cleethorpes for sea holly *Eryngium maritimum* and it was recorded at the L.N.U. meeting at Cleethorpes near the Greenwich Meridian marker.

Sea holly *Eryngium maritimum* photo RS Key

Paul has recorded scattered patches of sea barley grass *Hordeum marinum* another very rare maritime grass on Freiston Shore in TF44, about 200 plants along the back of the sea bank. He has also continued his survey at Laughton Forest and has found small-flowered wintercress *Barbarea stricta*; a very rare crucifer, probably introduced into Britain, confirmed by crucifer referee Tim Rich.

Mr & Mrs Keith & Wendy Robertson have recorded trifid bur-marigold *Bidens tripartita* from Tattershall pits together with more plants of common spotted orchid *Dactylorhiza fuchsii* which seems to be spreading.

Phil Porter has sent in records made Mr. B. Demars and Mr. D. Harper in a snorkelling team from the University of Leicester of about 20 species including a county rarity, hair-like pondweed *Potamogeton trichoides* from Coot Lake.

Mr David Knight recording at Skellingthorpe SK97 has added wild liquorice *Astragalus glycyphyllos,* horned pondweed *Zannichellia palustris*, thorn-apple *Datura stramonium,* perennial rye-grass *Lolium perenne var. cristata* (det. I. Weston) and Danish scurvy grass *Cochlearia danica* to his list. Also hairy finger-grass *Digitaria sanguinalis* found by Mr Ivor McNish, (det. IW.).

Mrs Claire Harrison continues to record arable weeds from Baumber. Night-flowering catchfly *Silene noctiflora* was new this year from a grass-seeded field at West Ashby (CH, IW and David Maxfield). Mr. Maxfield has sent in records for toothwort *Lathraea squamaria* from a blackthorn hedge in TF47 (an unusual host) and shining crane's-bill *Geranium lucidum* from Wood Enderby in TF26, on 29th May. He also recorded unbranched bur-reed *Sparganium emersum* as spreading at Kirkby Moor on 20th August. Mrs Harrison also recorded adder's-tongue *Ophioglossum vulgatum* from Hatton Meadows in TF17.

Several surveys were carried out on rare Lincolnshire species by IW, PK, VW, ZH, and PH. including sand leek *Allium scorodoprasum* a species thought lost but rediscovered in quantity on the Ermine Street and at Tuetoes Hills in Laughton Forest. Field garlic *Allium oleraceum* was refound at Laughterton on its original site, together with lots of crow garlic *Allium vineale*. Greater broomrape *Orobanche rapum-genistae* was re-recorded in its only Lincolnshire site at Laughterton and bog myrtle *Myrica gale* and cranberry *Vaccinium oxycoccus* were re-recorded at Greetwell bog. Lesser water plantain *Baldellia ranunculoides* was re-recorded at Crowle Brick Pits (near Tetley Hall) and lesser swine-cress *Coronopus didymus* was found in quantity in adjacent arable fields.

Greater broomrape *Orobanche rapum--genistae* at Laughterton photo I Weston

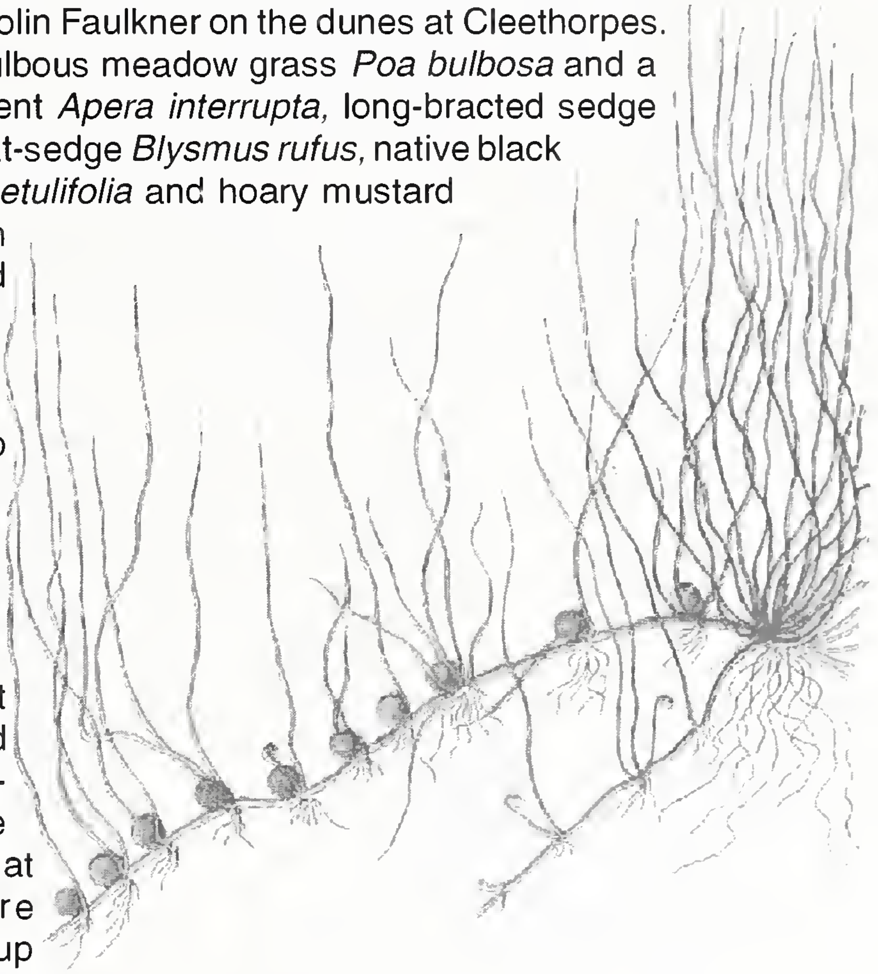
A survey at Greetwell Hollow with Mr Brian Eke produced old man's beard *Clematis vitalba*, not a common species in Lincolnshire and a survey of Brumby Wood on July 23rd to look for the wood barley grass *Hordelymus europaeus* was very successful, far more being found than previously recorded. Giant bellflower *Campanula latifolia* and the stingless form of common nettle *Urtica dioica 'galeopsifolia'* were also recorded.

Arable weeds recorded this year include Venus's-looking-glass *Legousia hybrida* in quantity in a wheat field full of poppies on Nettleham Road, Lincoln on June 25th. Three species of poppy, prickly poppy *Papaver argemone*, common poppy *P. rhoeas* and yellow-juiced poppy *P. dubium subsp. lecoqii* were in profusion. Sharp-leaved fluellen *Kickxia elatine* was found in a set-aside field at Woodhall Spa on August 23rd. Mrs Jane Ostler and Mr Eric Simms recorded phacelia *Phacelia tanacetifolia* in Downtown Stores, Grantham in SK83 and Mr. Geoff. Taylor recorded cornflower *Centaurea cyanus* and corncockle *Agrostemma githago* on the side of the cycle track at Dixon St. and Russell St. in Lincoln. Annual mercury *Mercurialis annua* was found at Boultham in Lincoln City.

Mr. John Moore recorded opposite leaved golden saxifrage *Chrysosplenium oppositifolium* in Churn Wood at Stainton le Vale TF19, hart's-tongue fern *Phyllitis scolopendrium* at Smithfield Plantation TF174954 and spurge laurel *Daphne laureola* at Healing TA215097.

Graham and Claire Weaver recorded common broomrape *Orobanche minor* from Humberston Fitties TA30.

Highlights this year from LNU meetings were smooth rupturewort *Herniaria glabra,* found by Colin Faulkner on the dunes at Cleethorpes. as well as many bulbs of bulbous meadow grass *Poa bulbosa* and a few plants of dense silky bent *Apera interrupta,* long-bracted sedge *Carex extensa,* saltmarsh flat-sedge *Blysmus rufus,* native black poplar *Populus nigra var. betulifolia* and hoary mustard *Hirschfeldia incana.* North Hykeham Pits in April turned up pillwort *Pilularia globulifera* and many introduced aquatics. Small-flowered buttercup *Ranunculus parviflorus* was found at Irby Dales, rock-rose *Helianthemum nummularium* and adder's-tongue fern *Ophioglossum vulgatum* at Mill Hill Quarry, bee orchid *Ophrys apifera* at Welton-le-Wold Quarry, wall-rue *Asplenium ruta-muraria* at Vernatts Local Nature Reserve, hairy buttercup *Ranunculus sardous* at Surfleet Lows and trifid bur-marigold *Bidens tripartita* at Hobblers Hole. Water purslane *Lythrum portula,* greater duck-weed *Spirodela polyrhiza* at Lincoln West Common with reflexed saltmarsh grass *Puccinellia distans,* lesser sea-spurrey *Spergularia marina* and bucks-horn plantain *Plantago coronopus* on nearby road verges.



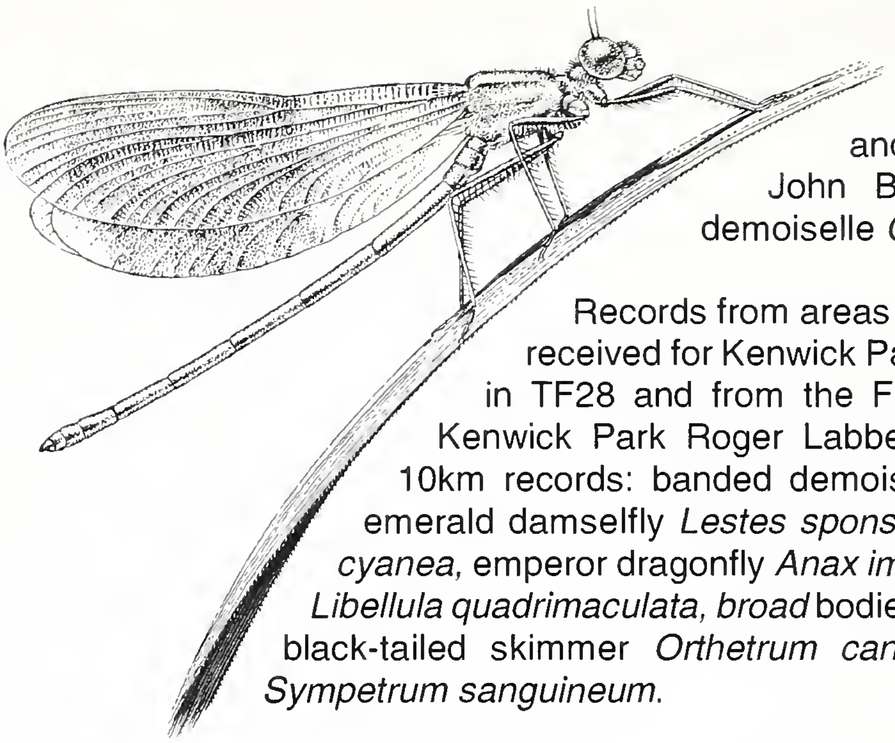
Pillwort *Pilularia globulifera*

Recent publication relevant to Lincs botany:

CHICKEN, E. 2001. *Rubus halsteadensis* W.C.R. Watson, alias the Holderness bramble in E. Yorks and N. Lincs. *Naturalist.* 35. 12-13.

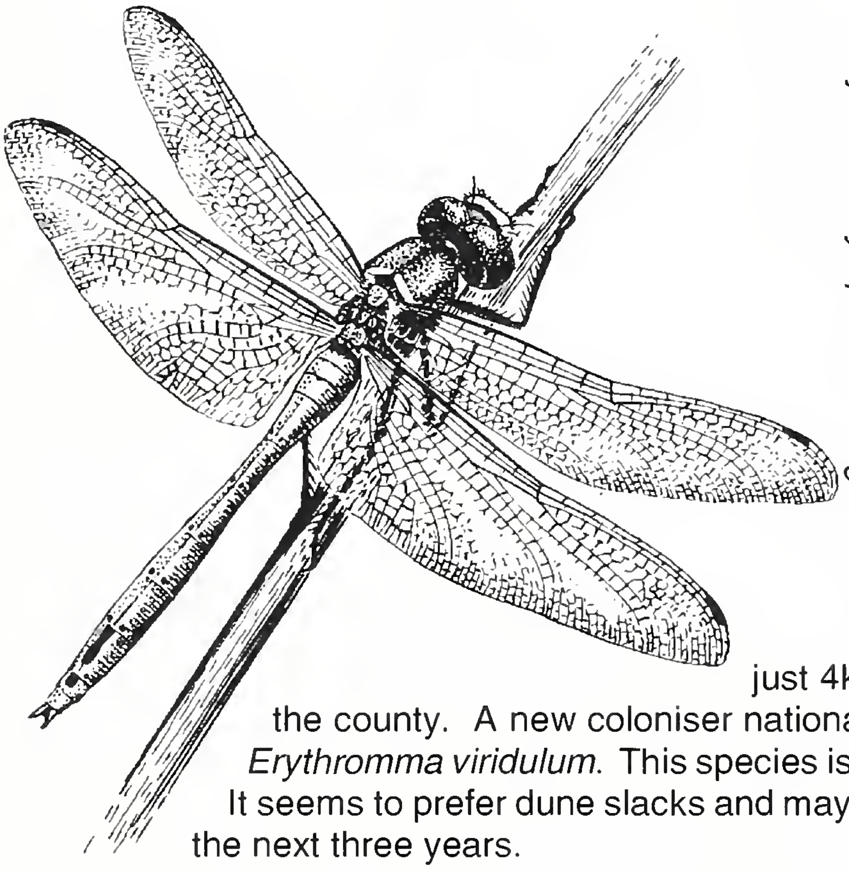
DRAGONFLIES - John Redshaw

Records of hairy dragonfly *Brachytron pratense* were received from Baston Fen Nature Reserve, Messingham Sand Quarry Nature Reserve and Saltfleetby-Theddlethorpe National Nature Reserve. A female found at Lincoln Arboretum on 22 May, by Helen Gregory, had a forewing missing, and a specimen seen at Boultham Mere NR on 3rd June, by Steve Botham, was the first record for the reserve. A British Dragonfly Society field meeting was held at Hartsholme/Swanholme reserve on 16th June, and Brian Hedley reported that good numbers of azure damselfly *Coenagrion puella* and blue-tailed damselfly *Ischnura elegans* were seen together with up to ten large red damselfly *Pyrrhosoma nymphula* and ten red-eyed damselfly *Erythromma najas.* The latter species continues to expand its range in the county, with new records received from the River Slea and Kyme Eau (TF15), where John Badley also found banded demoiselle *Calopteryx splendens.*


Banded demoiselle *Calopteryx splendens*

Records from areas not previously covered were received for Kenwick Park in TF38, Biscathorpe pits in TF28 and from the Frithville area in TF24. At Kenwick Park Roger Labbett found the following new 10km records: banded demoiselle *Calopteryx splendens,* emerald damselfly *Lestes sponsa,* southern hawker *Aeshna cyanea,* emperor dragonfly *Anax imperator,* four-spotted chaser *Libellula quadrimaculata, broad* bodied chaser *Libellula depressa,* black-tailed skimmer *Orthetrum cancellatum* and ruddy darter *Sympetrum sanguineum.*

Southern hawker *Aeshna cyanea* appeared to do well in late summer, particularly in the south of the county, and sightings of females or tenerals may well have given rise to reported sightings of golden ringed dragonfly *Cordulegaster boltonii.* This latter species is restricted to fast flowing hill streams, and there are no proven records for the county. In previous reports I have referred to species that are moving northwards, and which, if seen, would be new for the county. In particular the expansion in the range of white legged damselfly *Platycnemis pennipes* is being watched expectantly. In 2001 Kate Smithers saw this species over ponds at Ketton quarries (SK90) just 4km outside the south west corner of the county. A new coloniser nationally is the lesser red-eyed damselfly *Erythromma viridulum.* This species is moving northwards along the coast. It seems to prefer dune slacks and may well turn up at Gibraltar Point within the next three years.

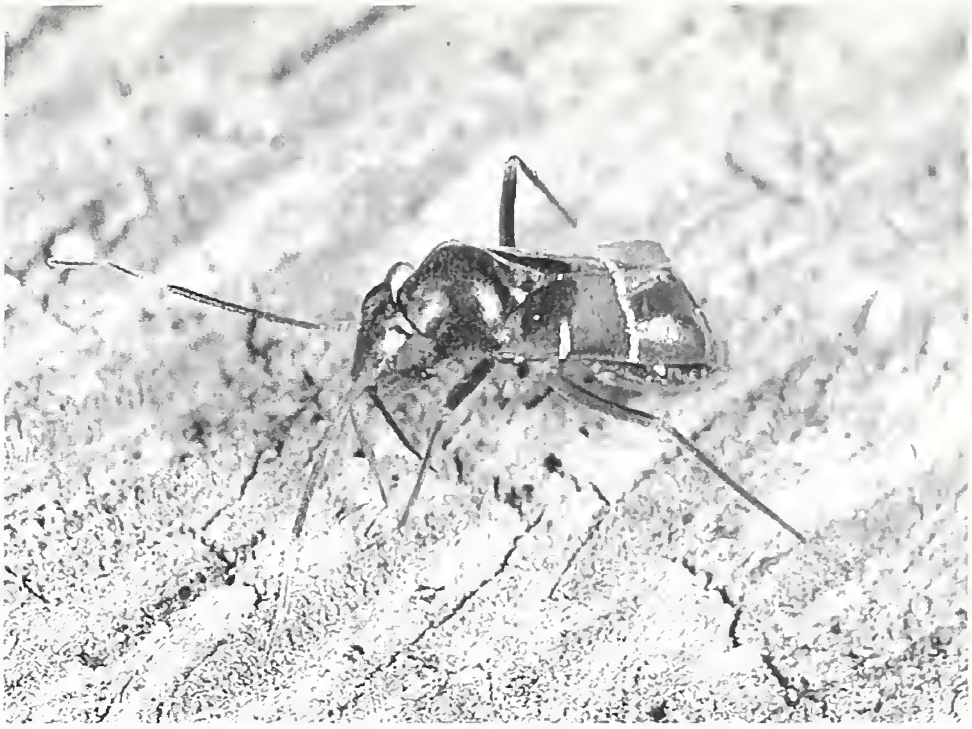

Ruddy darter *Sympetrum sanguineum*

BUGS - Annette Binding

There were no notable finds among the shieldbugs in 2001. Only eleven of the eighteen county species were recorded. There were, however, a couple of interesting records among the other bug species. *Rhopalus subrufus* (plate 12) was found during a survey of Porters Lodge Meadow in June and is new to the county although Dr. Kirby has found it near Peterborough. A group of nymphs and adults of *Pilophorus perplexus* were found by Allan Binding on a garden wall in Willow Court, Washingborough in July, a species that has only once been found in the county before, in August 1992 in Roger Key's garden in Crowland. I am grateful to Dr. Peter Kirby for confirming the identification of *Pilophorus* *perplexus* and for checking his records for both species.

BUTTERFLIES - Allan Binding

Many people continued to record from their gardens and roadside verges in 2001 which turned out to be a very good year for many butterfly species and, as a result, I received over 8,500 butterfly records from LNU and Butterfly Conservation members and the general public.



The bug, *Pilophorus perplexus* photo RS Key

The most important records this year were of white-letter hairstreak. Thanks to the very hard work of Peter Smith and Toby Ludlow of the Butterfly Conservation Lincolnshire Branch, the eggs of this butterfly were found in the winter months in the Lincolnshire Lime Woods. These were recorded through to the adult stages later in the year. The work on this species is continuing and many more sites have been found. While Toby was unable to enter the local woodlands this year he took to walking along the footpaths in his home village of Coningsby tree and discovered white-letter hairstreak eggs while taking a casual look at an elm. It was followed by Harry Turner finding an adult on a dead tree stump in his Louth garden and Mr I Glynn finding an adult in his garden at Carlby. All were new 10km square records. Toby Ludlow also re-discovered the species at Burton Pits Lincs Trust reserve after an eight year absence. The expansion in range of this butterfly has been confirmed by other recorders in the East Midlands.

New colonies of brown hairstreak continue to be found in the Lincolnshire Lime Woods and surrounding countryside. This butterfly is being monitored by Peter Smith and Toby Ludlow throughout the year. Most of the records are of the eggs in winter as they are much easier to find than the adult insect. Management of the blackthorn hedges in the Lincolnshire Lime Woods for this species continues under the supervision of Peter and Toby.

White letter hairstreak photo RS Key

Marbled whites were recorded again at their only natural site - a confidential location in South-west Lincolnshire. They were also seen in Little Scrubbs Meadow together with marsh fritillaries which were released by an unknown person a few years ago. This year 100+ wood whites were released nearby - again by an unknown person.

Most other species of butterfly had a good year except for small heath, which continued to decline, small copper, which is still in low numbers but widespread, and grizzled and dingy skippers which seem to be restricted to one or two sites in South Lincolnshire. Green-veined whites were down in numbers this year although very widespread. Very few migrant butterfly species were recorded except for the red admiral which seems to be breeding in this country. Only a single record of clouded yellow was recorded; at Swinn Wood.

The last butterfly record of the year was of a peacock at Southrey Wood seen by S Green and S Cook on the 19th December.

Moths - Phil Porter

As with the previous year, 2001 will not go down in the annals as a marvellous year for moths but, as is usually the case, there were rewards, especially for the regular operators.

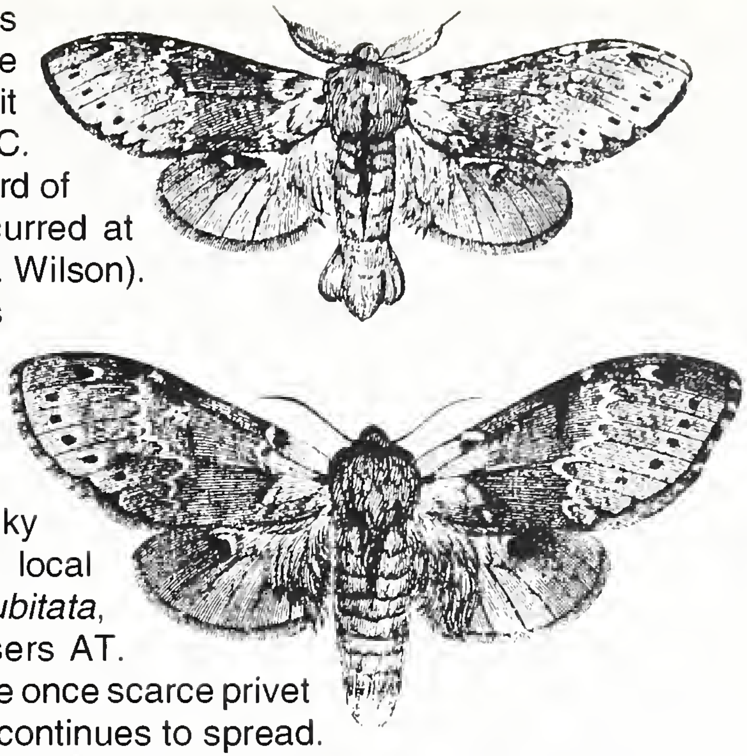
Migrants

Silver Y *Autographa gamma* was very widespread in relatively small numbers from 22nd May to 23rd October. There were seven records of humming-bird hawk moth *Macroglossum stellarum* from 5th June at Bourne South Fen to 17th October at North Hykeham. Bedstraw hawk moth *Hyles galii* records continue to occur and a migrant at Gibraltar Point on 21st July (Mr. KMS. Wilson) could have been associated with a brood of larvae found quite nearby at Stickford on *Fuchsia* on 9th September (Mr. G. Steele). There were records of convolvulus hawk moth *Agrius convolvuli* at Goxhill on 30th August (Mr. C. Potts) and at Skidbrooke on 31st August and 2nd September (Mr. J. Jaines). The dark sword-grass *Agrotis ipsilon* appeared from 1st to 16th July on 3 occasions and then on 4th October, while the closely related pearly underwing *Peridroma saucia* was recorded once at Grimsby on 9th June (Mr. V. Adams) who also recorded the most dramatic migrant of the year, a Clifden nonpareille *Catocala fraxini* on 22nd September (Mr. V. Adams). There were supporting occurrences in Norfolk at this time. The gem *Orthonama obstipata* appeared twice at Skidbrooke on 29th June and 22nd October (Mr. J. Jaines) and the occurrence of glaucous shears *Papestra biren* at Dalby on 6th July (Mrs. ME. Dawson) may be best attributed to migration.

Clifden non-pareille

Macromoths

A very notable record was a small argent and sable *Epirrhoe tristata* at Hougham on 14th August (Mr. N. Miller). This is the first record since that published in Mason's 'The Lepidoptera of Lincolnshire Part 3' in 1909-11. The dentated pug *Anticollix sparsata* has only been found at Laughton Forest, where a new clearing led to a good crop of yellow loosestrife, the food plant, and a record of the moth on 25th July (Mr. R. Johnson). The muslin footman *Nudaria mundana* is easily missed and only a few have been recorded in the last decade, but it was at Glentham on 24th July (Mr. C. Smith). The second Lincolnshire record of the lobster moth *Stauropus fagi* occurred at Gibraltar Point on 16th June (Mr. KMS. Wilson). A marbled green *Cryphia muralis* was found at Caistor on 25th July (Mr. AT. McGowan) and three finds at Far Ings are of special note; oak-tree pug *Eupithecia dodoneata*, last recorded at Grimsby in the 1940's-50's, silky wainscot *Chilodes maritimus* a local speciality and the tissue *Triphosia dubitata*, three in the last sixteen years (Messers AT. McGowan and A. Credland). Finally the once scarce privet hawk moth *Sphinx ligustri* (plate 13) continues to spread. There were ten records from 25th June to 2nd August mainly in south & central Lincolnshire.



Lobster Moth ♂upper ♀ lower

Micromoths

Records new to Lincolnshire.

Argyresthia trifasciata at Bourne South Fen on 21st May (Mr. J. Lamin)
Ypsolopha mucronella at Grimsthorpe Park on 18th May (Mr. J. Lamin)
Ypsolopha mucronella at Saltfleetby on 15th August (Mr. M. Tarrant)
Niditinea piercella at Messingham on 28th July (Mr. R. Johnson)

The following new or modern vice county records occurred during the year;

VC54

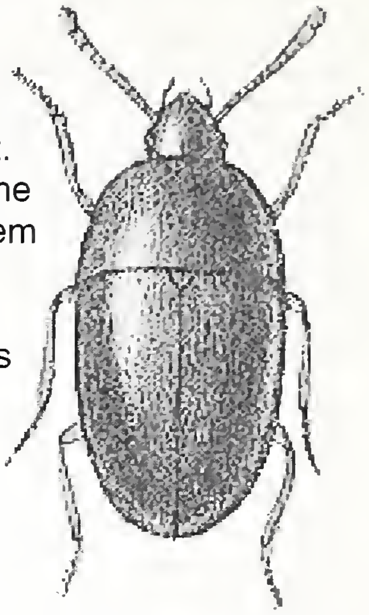
Etainia sphendammi at West Common, Lincoln on 15th July (Mr. R. Johnson)
Stigmella sorbi at West Common, Lincoln on 15th July (Mr. R. Johnson)
Monopsis obviella at Goxhill on 19th May (Mr. C. Potts)
Monopsis obviella at Sturton by Stowe on 7th July (Mr. C. Smith)
Glyphipteryx thrasonella at Southry Wood on 5th July (Mr. C. Smith)
Ypsolopha sylvella at Willingham on 7th August (Mr. C. Smith)
Coleophora murinipennella at Willingham Forest on 27th May (Mr. C. Smith)
Elachista subnigrella at Wickenby Wood on 31st May (Mr. C. Smith)
Agonopteryx ulicetella at Kirkby Moor on 19th December (Mr. C. Smith)
Anacampsis populella at Osgodby Moor on 31st July (Mr. C. Smith)
Pandemis cinnamomeana at Chambers Plantation on 14th July (Mr. C. Smith)

VC53

Teleiodes proximella at Callans Lane Wood on 5th July (Mr. J. Lamin)
Cochylis hybridella at Aslackby on 14th July (Mr. R. Johnson)
Cydia fagiglandana at Callans Lane Wood on 21st July (Mr. J. Lamin)

BEETLES - Roger Key

Species new to the county were few and far between this year. The only new species I recorded was the leiodid beetle *Parabathyscia wollastoni* a tiny beetle just 2mm long but with interesting Lincolnshire connections. First found in Britain from London but named after a very prominent Lincolnshire naturalist Vernon Wollaston (initially from Scotter) in 1857, its ecology was first worked out by Lincolnshire coleopterist Canon WW Fowler in the 1880s. It has been over a century before the species turned up in our county. Unlikely to be a recent colonist, this is a subterranean, almost eyeless beetle that is most frequently found in spoiled potatoes. This is where this record turned up. At the Crowland Wildlife Group's 'children's bug day' on 19th August, Mr Wag Smith of West Bank, Crowland brought along a potato riddled with tunnels to determine the culprit. They were almost certainly made by snake millepedes, although the only evidence of the culprit were some droppings, but amongst them was a single specimen of this beetle.



Parabathyscia wollastoni drawn by Canon Fowler in 1889

My only other interesting contributions this year were three records of the lily beetle *Lilioceris lilii* from Crowland. Formerly only recorded from Grantham in Lincolnshire, this unwelcome, if attractive species can devastate garden members of the Liliaceae.

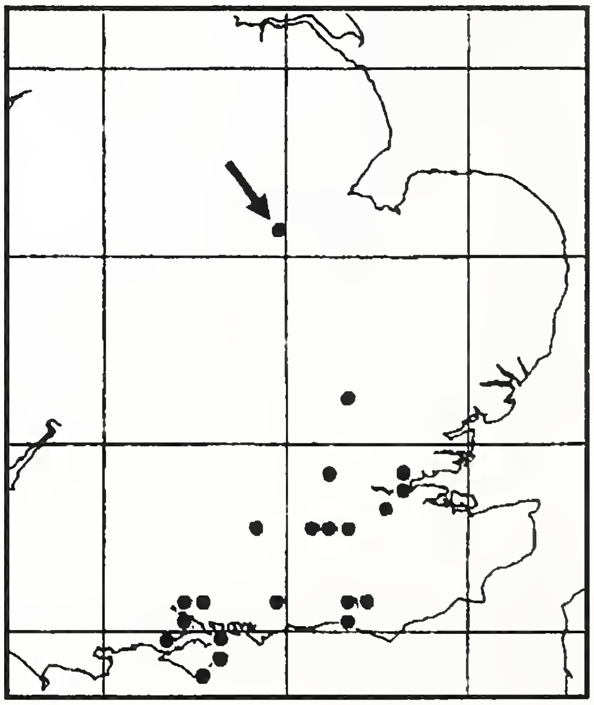
Another new but tiny species was recorded by Alan Lazenby from Blankney Fen, amongst an interesting assemblage of other scarce beetles in a dump of rotting rapeseed and peas at Blankney Fen on September 8th. *Myrmechixenus vaporariorum* (RDB3) is another subterranean species and is almost certainly less rare than its Red Data Book status indicates, it being very easily overlooked. Other interesting species in the same heap were *Ahasverus advena*, only the 2nd Lincolnshire record, the first being from Glentham in 1999, *Alphitophagus bifasciatus* again only our 2nd record having been found at Grimsthorpe Park in 1964 and our 7th county record of *Cryptolestes ferrugineus*. All of these are species frequenting decaying stored products.

Other interesting species recorded by Alan, all from Blankney Fen, were the ground beetles *Amara eurynota* on 9th September, the 3rd Lincs. record, *Badister sodalis* and *Badister dilatatus* on 15th July, only the 3rd and 5th recent records in Lincolnshire and *Badister unipustulatus* (Nationally Scarce B) on 17th August, the 7th county record, (completing the Lincs 'set' of beetles of this genus from Blankney Fen with *B. bipustulatus* which Alan has found there in the past). Nowhere else in the county have these four species (three typical of 'nice' wetlands), been found together.

Annette Binding added the small seed beetle *Bruchidius varius,* which feeds on the seeds of clovers, to the county list from Porter's Lodge Meadow on 17th August. It is a newly naturalised species in the UK, added to British list from Sussex in 1994 (Hodge, 1997) and has spread very rapidly (Cox, 2001).

At the same site and date was the large weevil Alophus triguttatus, which she also found there on 12th June and which is known in Lincolnshire from a single 19th century record from Court Leys and a record from Ancaster Valley in 1994 by Annette herself.

She also found the small weevil *Ellescus bipunctatus* (Nationally Scarce B), which feeds on sallows, at Roughton Moor Wood on 2nd May. This



Lincs record of *Bruchidius varius* (arrowed) with distribution in 2000 from Cox (2001).

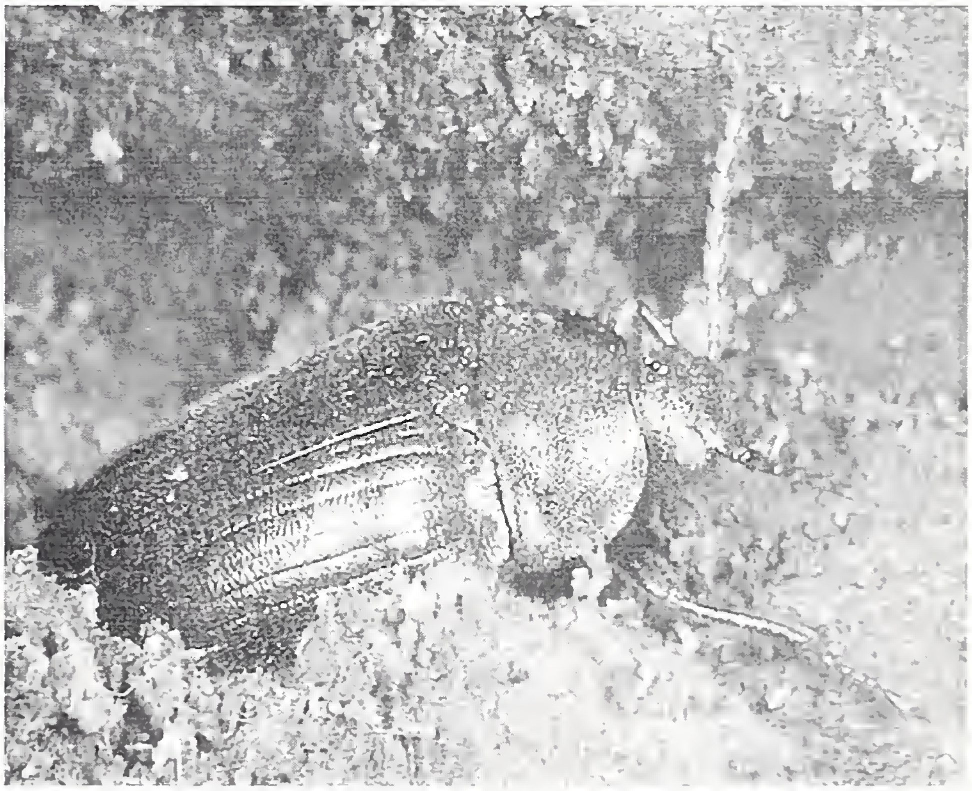
species was last seen in Lincs in the 19th century at 'Langworth Wood' by Canon Fowler.

Another 2nd county record was of the attractive metallic bronze leaf beetle *Chrysolina brunsvicensis*, which feeds on St John's worts, from Epworth Turbary on 28th September. I added this species to Lincs from Rimac in 1998. On the same day Annette also found the ground beetle *Amara eurynota* (4th record), and the weevil *Hypera punctata* (2nd recent record - 6 old records). On 30th May at the same site she found the water beetles *Berosus signaticollis* (Nationally Scarce B)(6th record), *Hydroporus obscurus* (4th record) and *Rhantus suturellus* (3rd record). This last species was last recorded at Epworth by William Wallace at the beginning of the 20th century. Balfour-Browne (1938) doubted validity of record on habitat grounds and it is nice to see the record vindicated after around a century. Also at Epworth Turbary on 30th May Annette found the longhorn beetle *Phymatodes alni* (Nationally Scarce B), known otherwise only from Grimsthorpe Park and College Wood.

Other records of interest made by the Bindings during the year included the small blue jewel beetle *Trachys troglodytes* on devils bit scabious at Kirkby Moor Reserve on 6th May (2nd record, previously here in 1997) and the wood boring weevil *Cossonus linearis* (Nationally Scarce A) at Vernatt's Nature Reserve, Spalding on 26th May (4th record).

Andy Foster, entomologist from the National Trust in Gloucestershire, visited Belton Park near Grantham in September and found a rich community of beetles associated with the old trees there. These included several species with very few Lincolnshire records: the tiny carrion beetle *Dendrophilus punctatus* only the 2nd record this century and the 4th ever; the rove beetles *Quedius brevicornis* and *Quedius ventralis* (both Nationally Scarce B) (*Q. ventralis* recorded from Grimsthorpe in 1995 and both recorded from Appleby in 1968); the cobweb beetle *Ctesias serra* (8th record - plate 14); flat bark beetle *Pediacus dermestoides* (4th site), fungus beetle *Cis festivus* (NB) (2nd record); hairy fungus beetle *Mycetophagus piceus* (NB) (old records only - Grimsthorpe 1964 and Woodhall Spa 1893), darkling beetles *Eledona agricola* and *Prionychus ater* (both NB) (6th and 5th records, the latter otherwise known from only two areas county; around Grimsthorpe and in old willows along the river Welland) and the tanbark borer *Phymatodes testaceus* (2nd true site - regularly from Grimsthorpe and a stray in a coastal beetle migration swarm at Sutton on Sea in 1954 (Riggall, 1955)).

John Lamin sent various beetles to Annette Binding for identification including two Nationally Scarce (B) dead wood beetles *Ctesias serra* (7th record of a species that feeds on the remains on insects caught in spiders webs under loose bark) from Dunsby Fen on 20th March and the darkling beetle *Prionychus ater* from Scottlethorpe Quarry on 28th July. He also found the attractive metallic green-blue leaf rolling weevil *Rhynchites cavifrons* Nationally Scarce B at Temple Wood on 22nd May.



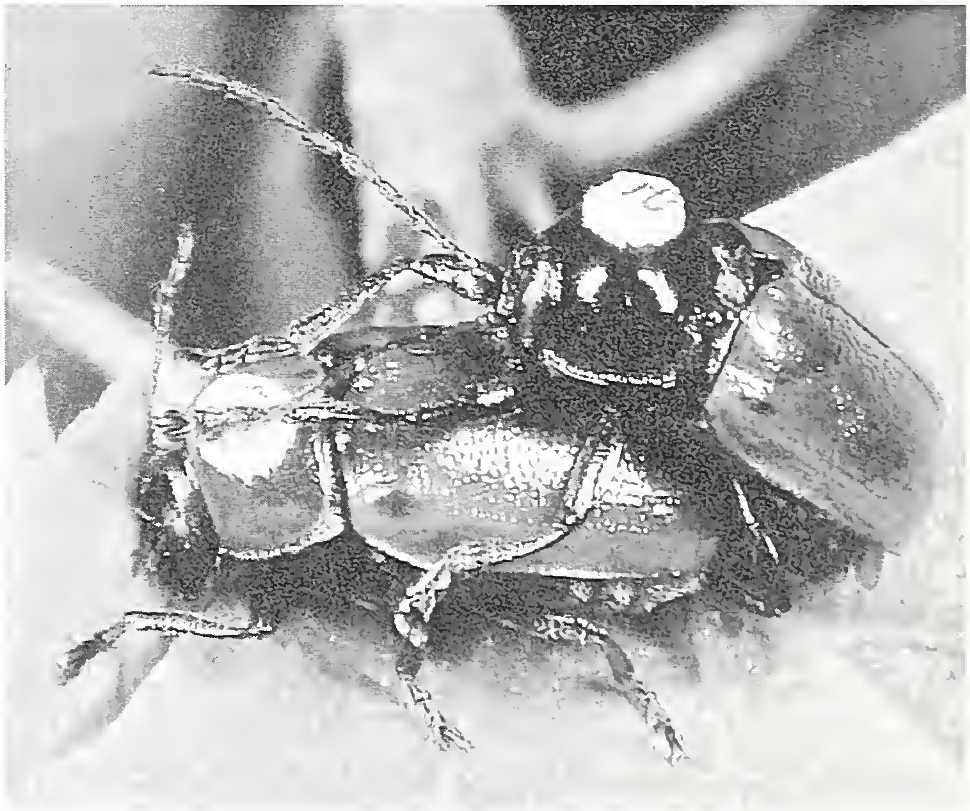
A darkling beetle *Prionychus ater*, found at two new sites in the county in 2001. photo RS Key

All other of the other 7 records of this species are from the Limewoods or Skellingthorpe Wood. Another species of interest was the brick red and black rove beetle *Deleaster dichrous* (Nationally Scarce B) from Callans Lane Wood on 2nd August. This species is normally thought to be riparian, but flies at night and is more frequently met with by moth recorders than coleopterists. This is only the 3rd county record, having been found at Crowle Moors & at Temple Wood.

As usual, Colin Smith found a number of interesting species during the year including two nice species on 22nd April from Walesby Grange TF120912; *Pterostichus angustatus* (Nationally Scarce B), a ground beetle usually only associated with burnt areas on heathland and the 4th Lincs record, and *Ocypus nero* (Nationally Scarce A) a large predatory rove beetle which is nationally scarce, but for which there are now 8 Lincolnshire records. He also found *Anoplodera (=Leptura) rubra* an attractive red longhorn beetle that breed in old pine stumps in Broughton Woods SE955108 16th August. This is our 9th record and this species is known to be spreading in Britain.

Richard Chadd from the Environment agency sent me the small water beetle *Hydraena nigrita* (Nationally Scarce B) for identification from Poke's Hole in February, only the 3rd county record. Yorkshire coleopterist Bob Marsh visited Cleethorpes Dunes on 17th October and found a couple of interesting species; the small histerid beetle *Kissister minimus*, the 3rd county record and last seen on the Humber coast in 1909 (and otherwise known from Rauceby Warren in 1994) and the rove beetle *Quedius semiobscurus* a common species nationally, but only our 8th record.

The English Nature/Leeds University project working on the 'hazel pot beetle' *Cryptocephalus coryli*, perhaps Lincolnshire's rarest beetle in a national context, continued to meet with success. Leeds PhD student Ross Piper got his doctorate and his Thesis (Piper 2002a) included full details of the researches and which are summarised in two English Nature publications (Piper; 2002b, Piper & Hodge; 2002). Experimental establishments were made at Whisby Nature Park (plate 15) and Laughton Forest in areas that, as far as could be ascertained, were very similar in character to the existing population at Kirkby Moor and the use of metal detectors to relocate larvae marked with tiny slivers of stainless steel attracted considerable radio and television interest, with Annette Binding, Ross Piper and myself making several appearances on among others, 'Country File', 'The Really Wild Show' and the 'Today' programme. Annette and Allan Binding's work on marked adults released at Whisby showed how very sedentary the species is.



Numbered specimens of hazel pot beetle photo RS Key
Cryptocephalus coryli mating shortly after release at Whisby Nature Park.

The original population at Kirkby Moor continues to do well.

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WASPS, ANTS and BEES - Michael Archer

My own activities during 2001 have been restricted to the nature reserves of Messingham Sand Quarry and Rauceby Warren from which I have recorded the following interesting species: *Priocnemis coriacea* Dahlbom (2nd record for Lincs., Rauceby Warren), *Trypoxylon medium* de Beaumont (new species for Lincs., Rauceby Warren 1990), *Nysson dimidiatus* Jurine (5th record, Rauceby Warren), *Gorytes tumidus* (Panzer) (2nd and 3rd records, Rauceby Warren), *Andrena praecox* (Scopoli) (Messingham Sand Quarry), *Andrena cineraria* (Linnaeus) (2nd record, Rauceby Warren), *Lasioglossum latriventre* (Schenck) (Messingham Sand Quarry), *Sphecodes crassus* Thomson (Rauceby Warren), *Nomada fulvicornis* Fabricius (2nd record, Rauceby Warren), *Nomada lathburiana* (Kirby) (2nd record, Rauceby Warren), *Bombus jonellus* (Kirby) (3rd record, Messingham Sand Quarry).

My work at Messingham Sand has now ended, which after 28 visits, has yielded 117 species (101 solitary, 16 social). However, my prediction is that about another 26 solitary species still remain to be found. This will be a challenge for another person.

PARASITIC WASPS - A Correction - Roger Key

My note of the record of this species as new to the county in 2000 found by Martin Drake was erroneous. The species was first found in Lincolnshire by John Flynn in 1988 in Grimsby and published in this journal (Flynn, JP, 1989. Hymenoptera - Gasteruptiidae *Gasteruption jaculator Transactions of the Lincolnshire Naturalists' Union* **22** p11) My thanks to John Bratton for pointing this out.

SPIDERS – Annette Binding

In 2001 only one new species was added to the Lincolnshire list but there were a number of other species recorded which had very few previous records. The new species was the jumping spider *Evarcha arcuata*. A single female was swept from heather during a survey of Epworth Turbary on 30th May. The species is similar to the much more common *Evarcha falcata* which can also be found on heather although *Evarcha arcuata* tends to favour damper places and our specimen was found close to one of the ponds. The species has a national status of Notable (Nb) and has a mostly southern distribution although it had been recorded at Hatfield Moors, just over the border in Yorkshire, in 1999.

Zelotes electus photo RS Key

Spiders with very few previous records included two *Zelotes* species, *Zelotes electus* and *Zelotes pusillus*. Small black spiders with a glossy carapace, most of them are nocturnal hunters although *Zelotes electus* often hunts in sunshine. There were eight previous records for *Zelotes electus* in Lincolnshire, mostly coastal except for one recorded at Whisby in 1995. In 2001 it was found at Gibralter Point Reserve. *Zelotes pusillus* had only four previous records. In 2001 it was found at Whisby Nature Park where it had been seen in 1987. This species tends to hide under stones and other debris during the day and is often found on heathland.

One of the cribellate spiders, *Amaurobius ferox,* was found in Washingborough in March. This is the largest of the European *Amaurobius* species and had ten previous Lincolnshire records. It was last recorded in 1995 and, like the much commoner *Amaurobius similis,* it is found mostly in houses and in crevices in garden fences and walls.

John Lamin found the crab spider *Diaea dorsata* (plate 16) at Bourne Wood, a new site for the county. A very distinctive spider, it has bright green legs and carapace and a yellow-edged brownish body. It is mainly found on trees and had only five previous records.

The large araneid spider *Nuctenea sclopetaria* which also had only five previous records was recorded at Whisby Nature Park in December. Male and female spiders were found on the curtains in the new Education Building. These spiders like living inside buildings and under bridges near water so the Whisby Centre, with its buildings and raised walkways which resemble bridges, has provided these spiders with an ideal home! With the exception of a single record from Irby in 1901, all of the other records were from the Lincoln area, three in Lincoln itself in the 1950's and one from Whisby in 1996 when a male and female were caught at the old visitor centre.

Another species with very few records which likes dark damp places is *Metellina merianae.* A fairly large spider, it likes to live in places such as caves and cellars and old rabbit holes and is often found near water. In July a single female was found under bark on a dead willow in a very damp woodland adjacent to a drain at Skellingthorpe.

Finally even some species which are listed as common across the country, have very few Lincolnshire records. Sometimes this is because they are so small that they are overlooked and sometimes it is due to the lack of suitable habitat within the county. Two species which fall into these categories were recorded in 2001. One was the wolf spider

Pardosa monticola . This spider likes open places such as dunes or hillsides where the vegetation is sparse and short and one was found on the dunes at Gibralter Point in July. *Helophorus insignis* is a very small species which prefers damp areas in woodland. It was recorded form Little Scrubbs Meadow in Chambers Wood Complex which has suitable damp areas within it.

MOLLUSCS - John Redshaw

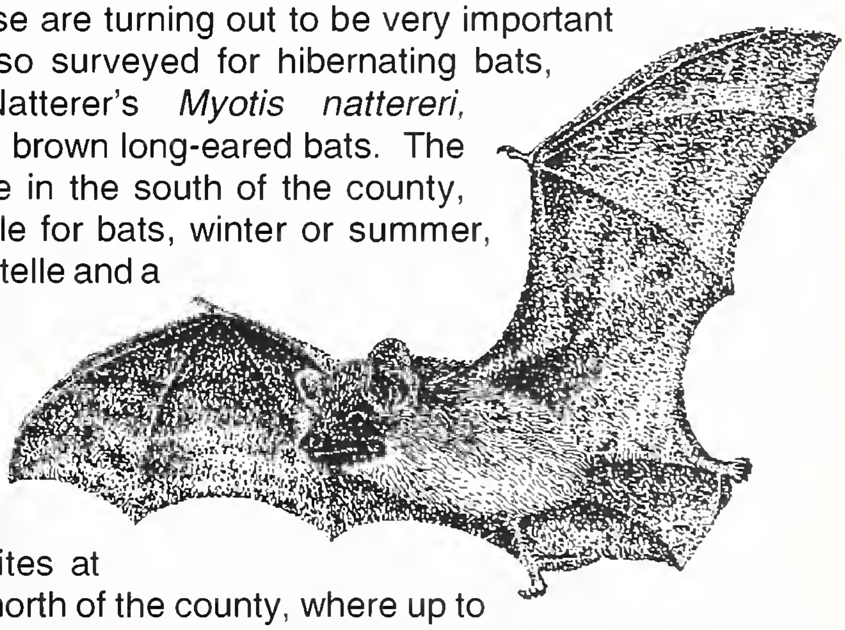
Just to prove that, after 30 years of recording, well-worked sites can still produce new records, 36 specimens of *Pupilla muscorum* were found under an old rotting fence post at Baston Fen NR (TF11) on 16th October. This also constituted a new 10km record in what is probably the most intensively worked square for molluscs in the county.

Chris du Feu continues to push back the boundaries of slug recording, and has provided many new 10km records. Of particular interest were his finds of ten species under rubbish at Hussey Tower, Boston (TF34) , in late June and early July. These included *Arion subfuscus, Arion circumscriptus, Arion silvaticus, Limax flavus, Tandonia budapestensis* and *Lehmannia valentiana* which were all new to the 10km square. He has been very successful in finding *L. flavus*, which is markedly nocturnal, and reports that in his garden in July, this species does not emerge until well after 10:00 pm. Another successful haul was made looking under rubbish in lay-bys, on the high street between Horncastle and Ludford crossroads in TF28. *Tandonia sowerbyi, T. budapestensis* and *Deroceras panormitanum* were new for the 10km square. Alison Brownlow has produced several new slug records, which include *Arion distinctus* and *A. silvaticus* from Walesby in TF19, and *L.flavus* from the Goxhill square (TA12).

BATS - Annette Faulkner

At the time of writing not all records are in for 2001 but discoveries continue. Last year I reported that a single barbastelle *Barbastella barbastellus* had been discovered hibernating at a site near Grantham during a routine survey. Renovation work subsequently took place on this part of the building in a highly successful partnership between English Nature and local architects working under instruction from English Heritage. The site was resurveyed in January and February and a solitary barbastelle was again found hibernating, along with two brown long-eared bats *Plecotus auritus.*

The two big hibernacula near Louth between them for the first time produced over a hundred bats, of 5 species, and these are turning out to be very important sites. Other smaller sites were also surveyed for hibernating bats, producing small numbers of Natterer's *Myotis nattereri,* Daubenton's *Myotis Daubentoni* and brown long-eared bats. The big surprise came when a Trust site in the south of the county, hitherto regarded as being unsuitable for bats, winter or summer, produced another hibernating barbastelle and a Natterer's bat.



Of the summer records, noctule bats *Nyctulus noctula* are giving cause for concern, with what appears to be a big decline, and nearly all records are in ones and twos apart from sites at Normanby Park and Scawby, in the north of the county, where up to eight have been recorded. We still have no current summer roost records for noctules, which would give a clearer picture of their status. A possible threat to noctules, apart from the loss of habitat and tree roosts thought to be responsible for much of the present decline, is the increase in hobbies, which fly late and predate the early-emerging bats. At a site in Mavis Enderby, where up to 30 bats have been counted in the recent past, a hobby was seen to take at least 3, though the bats seem to have fairly rapidly changed their feeding behaviour, and this may not be as potentially catastrophic as it sounds.

An important new site for Natterer's bats was found in Lincoln, both for summer and also probable winter roosting. At the time of writing we are awaiting further details of a survey carried out by consultants, after a preliminary survey was carried out by one of the Lincoln bat workers. The discovery of this site continues to confirm the Lincoln ridge area and points south as the main stronghold for these bats in the county, though there are several isolated sites elsewhere, including a very important house roost on the edge of the fens.

Fieldwork was largely put on hold because of access restrictions, but paper surveys continued, with the long-running National Bat Colony Survey coming to an end this year, having been largely superceded by a similar survey run by the Bat Conservation Trust via the National Bat Monitoring Programme. About 40 people take part in this in any one year, and the majority have opted to continue in one form or another.

At local level we continue to send out roost record questionnaires at five-yearly intervals to roost owners, to update our records and keep in contact, though the response for 2001 was not as good as previous years, with only 30% of questionnaires returned. Having been using this survey tool for several years now, with the first questionnaires covering records right back to 1982, it would appear that pipistrelle *Pipistrellus sp* colonies are at least stabilising, though there are few signs of population increases.

Finally, 2001 saw the production of a national Atlas, produced by the Bat Conservation Trust, based on 10km square records from data supplied by county recorders across the whole country. Some of Lincolnshire's records will have come from LNU and Lincolnshire Wildlife Trust members.

TRANSACTIONS OF THE LINCOLNSHIRE NATURALISTS' UNION

Officers of the Union in 2001

President	Annette Faulkner	**President Elect**	Neil Pike
General Secretary	Phil Porter	**Treasurer**	Annette Binding
Auditor	John Levine	**Membership Secretary**	Annette Binding
Publicity Secretary	vacant	**Programme Secretaries**	Neil Pike
Sales secretary	Annette Binding		Annette Faulkner
Publications Editor	Roger Key	**Records Secretary**	Roger Key

Executive Committee Ian MacAlpine-Leny, Chris Manning, Colin Smith and Mark Crick. **External Representatives** Roger Key (Nation Fed^{n} of Biological Recorders), Ken Rowland (Community Council & Swanholme Advisory Gp). Neil Pike (Countryside Stewardship), Irene Weston & Ruth Race (Museum Action Gp). **Development Group** Dave Bromwich, Annette Faulkner, Roger Key & Phil Porter

Section Recorders

Geology	Mr David Robinson	**Higher plants**	Mrs Irene Weston
Bryophytes/Lichens	Prof. Mark Seaward	**Molluscs**	Mr John Redshaw
Fungi	Mr Ken Rowland	**Spiders**	Mrs Annette Binding
Freshwater algae	Dr W. Brierley	**Isopods& Myriapods**	Mr Neil Pike

Dragonflies	Mr John Redshaw
Grasshoppers etc	Mr Brian Redman
Shield bugs	Mrs Annette Binding
Butterflies	Mr Allan Binding
Macro Moths	Mr Phil Porter
Micro Moths	Mr John Lamin Mr Colin Smith
Flies	Mr Andrew Godfrey & Mrs Jillian Mears
Beetles	Dr Roger Key
Sawflies	Dr David Sheppard
Ants, wasps & bees	Dr Michael Archer
Plant galls	Mr Graeme Clayton
F/W invertebrates	Mr Richard Chadd
Birds	Mr J Mighell
Mammals & Herps	Mr Roger Parsons
Bats	Mrs Annette Faulkner

Secretary's Report, 2001 - Phil Porter

The year started with the deferment of the A.G.M. until April 22nd on account of traveling limitations during the Foot and mouth disease outbreak. The committee met on 22nd March, 14th May, 26th July, 27 September and 8th December. Venues were Whisby Nature Park Education Centre and Banovallum House, Horncastle.

The summer and winter programmes were compiled by Neil Pike and during the year it became clear that the Union would be forced to face up to more stringent Health and Safety considerations during field trips in these litigious times. The winter programme included more orthodox talks than of late and we have decided to follow this policy during 2002. Because of requests to alter elements of the timing of meetings, they commenced at 1.00pm for the most part. This arrangement was definitely not popular, however, and the committee is urgently wishing to find members' preferences in this matter. In times when individuals have many more calls on their time, it is becoming more difficult to accommodate everyone's preferences for meetings. Thanks are due to Neil Pike for arranging the meetings during the last couple of years.

Developments at Stamp End, where the collections rescued by LNU members at the break-up of the City and County museum have been stored, reached a head during the latter part of the year and have caused Union members to pull together once again. Throughout the year, in the knowledge that the buildings would be demolished at some point in the not too distant future, members of the committee and others including members of the Museums Action Group had been sorting the savable material. A number of options for permanent removal had been discussed, although none appeared straightforward. The matter then took on an altogether different aspect when shortly before Christmas, Allan Binding, visiting the collections, was notified verbally of two months notice to quit, and written confirmation was received a short time later. In the time available, reception of the material thought to be most important to retain was divided up among members. Paul Kirby is now holding the archives, part of the library and the botanical collections. Roger Key is holding the journals, Neil Pike took in the retained birds, the invertebrates are here at Whisby Nature Park, and Dr Philip Pugh of the University of East Anglia at Cambridge has accepted the Pye Shell collection for use in taxonomic studies and teaching. Exotic curiosities with sale value were auctioned, benefitting the LNU by some £5,000. It must be stressed however that none of the arrangements for the retained material can be regarded as more than short-term answers, and so the long-term search for a home for the collections must continue.

In this area, it is encouraging that English Nature has asked the Union to donate the modest sum of £200 towards a feasibility study aimed at providing a biological records centre in the county.

The Esmee Fairburn Fund project to commit the county's flora to a database continues but hit problems during the year owing to a malfunction of the laptop computer. It transpired that the Horncastle company from which it was bought was not only unwilling to accept responsibility for the fault, but was also possibly on the point of going out of business. Therefore a new laptop was purchased from another supplier from within the project funds and a compromise; unfortunately involving some further outlay was reached with the original supplier, allowing the repaired machine to be returned. This now being used by Colin Smith who amasses a large amount of records annually. Thanks are due to Ian Macalpine Leny for his assistance in dealing with the suppliers.

In the realm of publications, two such are currently in the pipeline. David Robinson is editing a script by Chris Manning on British deer in Lincolnshire, and Rex Johnson is compiling an update to The Butterflies and Moths of Lincolnshire.

The administration agreement with the Trust has reduced the burden of officers but some teething troubles have led the committee to compile a formal service level agreement so that the respective requirements of the Union and the Trust can be fully met. Mark Crick compiled the agreement in its first draft, and thanks are due to him for this work.

Meetings in 2001

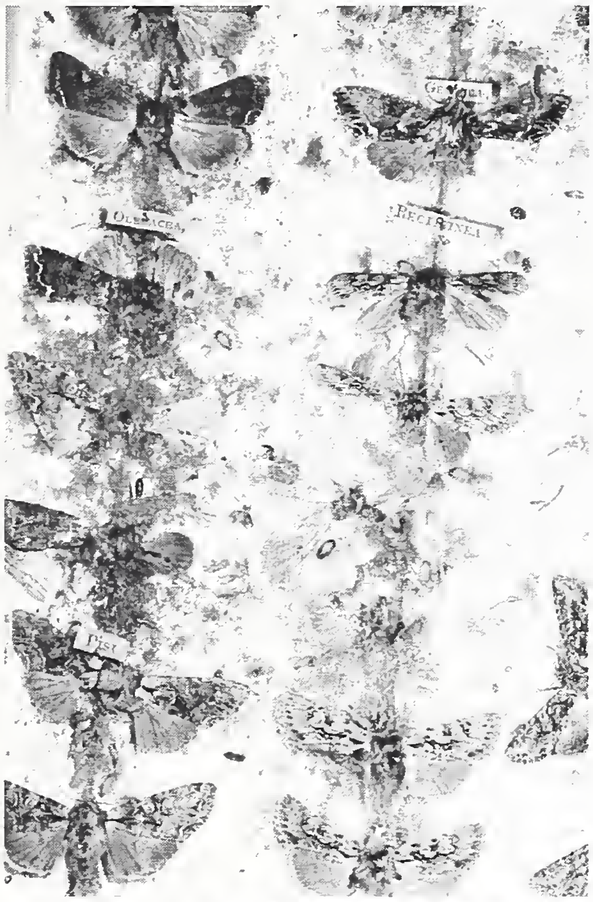
Jan 22nd Sun	643rd Field Meeting. Wolds Geology with John Aram
Feb 19th Sat	Presentation of Recorder's Reports. Hartsholme Country Park
April 22nd Sat	644th Field Meeting. North Hykeham Pits followed by AGM at Whisby Nature Park
May 21st Sun	645th Field Meeting Burghley Park (Northants). Joint meeting with Peterborough Wildlife Group.
June 10th Sat	646th Field Meeting Whisby Nature Park (Presidential Meeting)
July 9th Sun	647th Field Meeting Belton Park, Grantham.
Augt 13th Sun	648th Field Meeting Kirkby on Bain Pit. rescheduled from Grebby.
Sept 2nd Sat	649th Field Meeting Owlet Plantation (Woodland Trust) and Pitt Hill Plantation near Gainsborough.
Oct 15th Sun	650th Field Meeting Fungus Foray. Tortoiseshell Wood and Lawn Wood Lincolnshire Trust Reserves.
Nov 16th Thurs	Christine Godfrey Memorial Lecture. 'The Life of a River' by Nick Bromwich of the Environment Agency. Jointly with the Lincolnshire Trust Lincoln Area Group at Christ's Hospital School, Lincoln.
Dec 2nd Sat	Christmas Miscellany Quiz. - Hartsholme Country Park

Of the April meeting at North Hykeham, Ken Rowland writes:
The April LNU meeting at the foundry waste tip at North Hykeham was of some personal interest, having lived at the end of Grace Avenue during the late 1930's and working at the Malleable for 40 years the site is fairly well known to me. 65 years ago it was a scrubby field and then during and immediately after the war, sand and gravel was extracted and the holes left vacant for some years being used as swimming areas by us locals. Later it was purchased by the firm to be used for the disposal of foundry refuse. I think it was in the late 60's or early 70's the site was dug out and recycled for the tramp iron it contained, so its static life has been around 30 years. The flora must still be improving.

STAMP END MUSEUM SCRAPBOOK

Roger Key

Members of the LNU spent many hours over the year rescuing specimens of plants, insects and stuffed mammals and birds from the ravages of the full spectrum of museum pests. Sadly many were beyond rescue and had to be disposed of. The remainder, along with the contents of the library, are currently housed with various LNU members pending the finding of a more permanent storage solution (photos by Roger Key).



Sorry state of some of the Stamp End collections.
1 British moths. 2 Herbarium sheet. 3 Tropical butterflies.
4 Duck-billed platypus. 5 Red squirrel.

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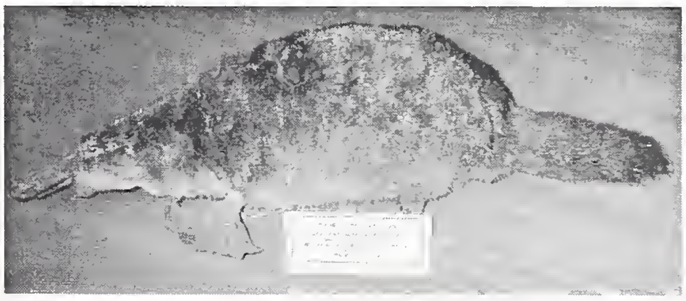
4 5



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1 Allan Binding with the European butterflies. **2** Annette Binding and Annette Faulkner cataloguing the library. **3** Roger Key vacuuming pests from the moth collection. **4** Rosy Key combining moth collections. **5** Annette Faulkner with the herbarium. **6** Annette Faulkner binning moth eaten taxidermy.

Contributing to "The Lincolnshire Naturalist"

We are constantly on the lookout for full length articles or short notes, even a few lines which can be useful space fillers, on any aspect of our natural history, current or historic. Consider a note in "The Lincolnshire Naturalist" for any new or significant observations.

Articles should be typed. It would help the editor *tremendously* if they could either be e-mailed or sent on a 3½" computer disk with accompanying paper copy, in just about any word processor format (although don't let this put you off sending in an article) and in the format described here. Adding an ASCII and/or RTF text file in addition to the word-processed file will ensure that it can be incorporated directly. Most word processors can also output in ASCII and RTF. Drawings, black & white photographs, colour transparencies or negatives (please include a print) can be included. Colour illustration may be rendered to black & white. Please give a caption. Illustrations will be returned and edited text resubmitted to the author for approval and proof-reading before publication.

Convention adopted for names - Latin names should be *italicised*, **not** (bracketed) or underlined and should follow the English name (where applicable) with no separating comma. English names should start with lower case letters unless incorporating other names warranting capitalization (eg Brandt's bat).

References to journals and books should please be as below. Pease note and use the capitalization and italic convention.
WOODRUFFE-PEACOCK, Rev E.A., 1900. The Lincolnshire Naturalist's at Freiston. *The Naturalist*, **25**: 141-144.
DUDDINGTON, J. & JOHNSON, R. 1983. *The Butterflies and Larger Moths of Lincolnshire and South Humberside*. Lincolnshire Naturalists' Union. Lincoln. 299pp.

A guidance note is available and is sent out to recorders. Otherwise, please attempt to imitate the format in this issue of the Lincolnshire Naturalist.

The final copy date is **31st March** of the year in which the Transactions are to be issued. Please contact the editors directly if there is difficulty in meeting this deadline. If in any doubt as to whether your observation merits a note or an article, or you have any other queries please do get in touch with the editor Dr Roger Key, 67 Peterborough Road, Crowland, Lincs, PE6 0BB, tel 01723 210541, to whom texts should be sent.

Editorial - Late Issue

Roger Key

We're now into 2003 for this issue of the Lincolnshire Naturalist for 2001 and this is, as far as I know, the latest there has ever been, for which I apologise to LNU members. With our temporary loss of a staff member, my work with English Nature has taken almost all of my free time over the last year and resulted in this very late issue. Also, for the first time since I became editor there has not been a superfluity of copy submitted - indeed we are short a couple of regular annual reports and those that we have are shorter than usual, mainly as a result of the restrictions on access to the Lincolnshire countryside that were imposed because of the dreadful Foot & Mouth Disease for most the field season. As a consequence, this issue is 12 pages shorter than usual. Hopefully this is a temporary blip and normal service will be resumed next year.

I've one more year to go as editor and we've still not got a replacement - volunteers please! I'll reiterate what I said in last year's editorial: It is an interesting, if demanding job and I will be happy to work with the new editor, perhaps over the next year while I'm still editor, and for a year or so after they have started if they want me to. The editor has, in recent years, automatically have a place on the Executive Committee of the LNU. Please get in touch if you're interested.

THE LINCOLNSHIRE NATURALIST
including
Transactions of the Lincolnshire Naturalists' Union
for 2000
Volume 25, Part 3, 2002

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cover photograph
Wet woodland at Baston Fen
photo by John Redshaw